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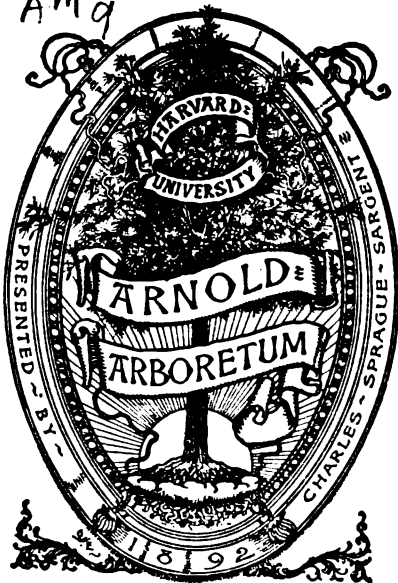
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THE MAGAZINE
OF
HORTICULTURE,
BOTANY,

AND ALL USEFUL DISCOVERIES AND IMPROVEMENTS IN
RURAL AFFAIRS.

"Je voudrais échauffer tout l'univers de mon gout pour les jardins. Il me semble qu'il est impossible qu'un méchant puisse l'avoir. Il n'est point de vertus que je ne suppose à celui que aime à parler et à faire des jardins. Pères de famille, inspirez a jardinomanie à vos enfans."—*Prince de Ligne*.

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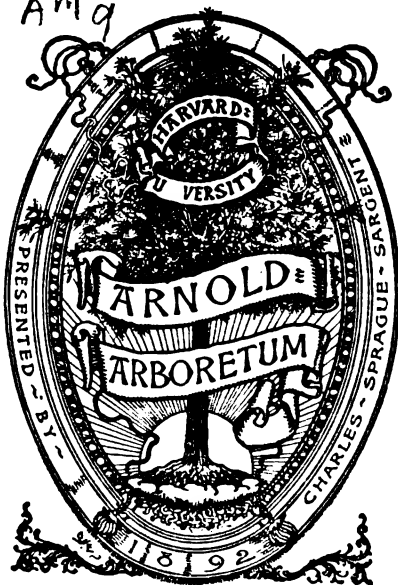
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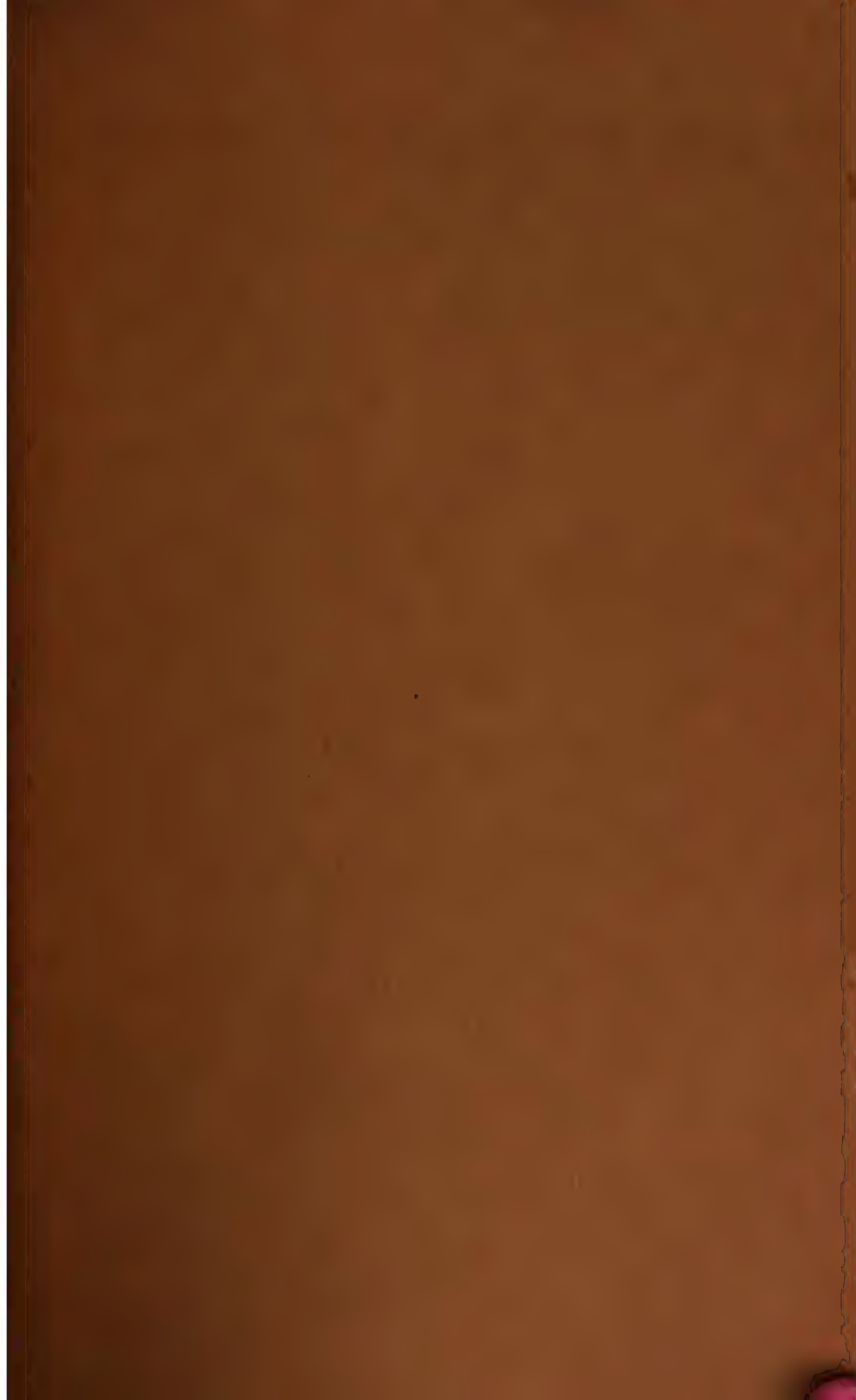
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it cannot be denied that we must wait patiently for better times before horticulture will receive its due share of attention. We do not say this despairingly; on the contrary, our people are so energetic and enthusiastic that it will be but a temporary halt, to be renewed with greater intensity, as the remote cause of all our impediments to progress is forever removed from our land.

We record, as heretofore, the state of the weather for the year.

January commenced with mild weather, and a light snow of three inches on the 3d, and the thermometer at 32°. The 5th was cold again, and the temperature continued to fall till the 13th, when it reached 12° below zero, and the 14th, 4° below. The next week was milder, and the last week cold and variable, with six inches of snow.

February opened more mild, with the temperature at 40° on the 2d, and rain, which carried off the snow. But on the 7th occurred one of those sudden changes which are peculiar to our latitude. At noon the temperature was 45°; a fresh breeze then set in from the north, which increased almost to a gale; the mercury fell rapidly, and at midnight it was 8° below zero, and at sunrise on the 8th, 17° below, a fall of 62° in twelve hours. The 17th was very cold, the temperature being 4° below zero, at noon. The 10th it was mild again, with a warm rain on the 12th, and a storm on the 15th, with thunder and lightning. A few cold days succeeded, and the end of the month was fine and warm.

The commencement of March was a continuation of the mild weather. On the 3d the temperature was 50°; the 7th it was cool again, with the mercury at 8°, and the week ending the 16th was cool, with five or six inches of snow. The 18th the temperature fell to 2°, and the 21st was the severest storm of the winter, ten inches of snow having fallen in about twelve hours, much drifted, and causing much injury to trees. The remainder of the month was fine and mild, and most of the snow had disappeared.

April opened with another snow storm of nearly equal severity to that in March; ten inches fell, and so much drifted as to block up the roads. Three inches more fell on the

3d, the wind east, and the temperature 32°. The weather continued cold and frosty up to the 13th, when it was warm, with the mercury 62° at noon. On the 16th it was cold again, which continued to the 23d, when the first really spring weather set in.

May day was showery and cool, and on the 3d there was a heavy frost, with the temperature as low as 26°. On the 5th it was again 27°, with a heavy white frost, rather unusual at this late season, but vegetation was so backward it sustained no injury. On the 6th was an easterly storm. It was warm and showery up to the 18th; it was then cool again, with a slight frost on the 22d; the 25th it rained; the 26th was the first warm day, with the temperature at 70°.

June opened warm and fine, with the temperature at 80°. The 3d was rainy, and the following week cool, cloudy, and wet. The 12th was warm, and the remainder of the month was uniformly fair and warm, with only one showery day, and the highest range of the temperature 84°.

The first week of July was fine, hot, and dry, the temperature being 90° on the 4th, 91° on the 5th, 6th and 7th, and 100° on the 8th. The first rain for nearly a month fell on the 20th. It was then cooler, with showers, to the close of the month.

August commenced with a warm week, the temperature varying from 80° to 90°. It was then showery and cooler, with an easterly storm on the 13th, the temperature being as low as 55°. The remainder of the month was warm and fine, with a few very light showers.

The beginning of September was warm and beautiful, with the temperature from 70° to 80°. The 11th was rainy and cooler. It was then fine and warm again up to the 22d. The remainder of the month was cooler, without rain and without frost. The lowest temperature was 39°, on the 28th.

October commenced almost as warm as September. On the 6th the temperature was 78°; the 8th was cool and rainy. It was then variable and warm again, with light showers. On the 22d the mercury fell to 32°, with a very slight frost, and on the 25th it reached 25°, when all tender vegetation was killed. The few remaining days of the month were cool, with light frosts.

November continued pleasant and mild, with light frosts; but the temperature did not fall so low as in October, during the entire month. The temperature was very uniform, varying from 26° to 32°, in the morning. On the 25th snow fell to the depth of three inches, but with the rain of the 29th it disappeared.

The month of December was cool, though warmer than the average of that season. On the 4th the temperature was 15°; it was then warm again. On the 12th the mercury fell to 14°, and up to the present time (the 20th) it has been unusually mild, with the ground as open as in October.

Though a careful examination of the above summary of the weather, since April, will not disclose anything that could be unfavorable to the growth and perfection of the fruit crop, with some few exceptions it has rarely been so light, and still more rarely, so ordinary. Apples were almost an entire failure, and pears were not a third of a crop. No plums, cherries, quinces, or peaches. Strawberries and raspberries were abundant and fine. Blackberries a failure, and very few grapes, but very good.

This result was not, however, caused by the weather of the spring or summer. It was the severity of the winter, of the cold blast of February 7th, which destroyed nearly all the flower buds on every kind of tree exposed to it, and in many cases the trees themselves. Peaches were severely injured, and old or unthrifty trees quite killed. Cherries presented a sad appearance all summer, and the future recovery of many large old trees is doubtful. Even the leaf buds were so much injured that they put out but little foliage during the season. Some cultivators have supposed that this destruction was owing to the severe early frost of October 1; but the fact that blackberries, raspberries, and grapes, which were not covered till November, bore an abundant crop, shows conclusively that such was not the case. And we have heard of instances where limbs of peach trees, that were accidentally covered with snow, bearing good crops. Another fact more convincing than all is, that peach trees, taken up in our grounds as late as November, and put into grape houses, produced quite a number of peaches.

In fact the summer was very favorable, though rather dry, and had the winter not caused so much destruction, the fruit crop would have been very large. The inferior quality of the fruit must be attributed to the same cause which killed the buds, for undoubtedly those which escaped were more or less enfeebled, and the trees received a shock which affected both their vigor and vitality. Hence the few fruits which were produced on large trees were not so fine as the heavier crops on the same trees in 1860. The result of such experience is to warn us of the necessity of providing shelter, and of securing everything that can be protected from the severity of our winters.

HORTICULTURE.

The causes that we have just alluded to severely affected the development of more information in regard to grape culture, which has become one of the leading features of pomological interest. But, to make up in part for the loss of many vines, the season was more than usually favorable, and many varieties, that have not fully matured their fruit in the latitude of New England, for several years, were produced in the highest perfection. Even the Isabella and Catawba ripened their crop. The Delaware, Concord, Hartford Prolific, Diana, &c., were exhibited in all parts of the country of unusual excellence. The vines did not mildew, and the absence of wet weather, with the warm and beautiful October, combined to make the last year one of the most favorable for grapes within the remembrance of cultivators.

Our recent article on our native grapes, (Vol. XXVII. p. 529,) leaves us little to say here. Since, however, it was written, we have noticed that other writers substantiate the opinion we expressed. The Concord is particularly praised. Mr. Thompson of Ohio, in giving an account of a visit to Mr. Knox of Pittsburg, Pa., states that "he cannot speak in terms of too high commendation of it. The vines of all ages are a perfect picture of health. A large number that had been two years planted were bearing their first crop of fruit—the clusters large, the berries perfect and thoroughly ripened, and the flavor, in my estimation, if not as good as other varieties, at least superior to Isabella. The vines averaged one

dollar each, from the sale of fruit, which readily commanded twenty to twenty-five cents per pound, in the Pittsburg market ; while Isabellas and Catawbas (unripe of course) were a drug at six to eight cents." He also notices a row of four-year old Concords, which was covered with the most magnificent clusters he had ever seen, "reminding one of well-grown Black Hamburgs, though from their jet black color and covering of rich bloom, they eclipsed that celebrated variety in beauty of appearance."

The interest in exotic grape culture rather increases than diminishes with the English and French cultivators. Many new seedlings have been produced, most of which will be found enumerated in our Pomological Gossip for the year. Some of these possess great merit, and it appears now that they will be likely to take the place of the old varieties which have been so long the favorites of cultivators. This will be a slow process, because we have much to learn in regard to all the characteristics of these new sorts, and their adaptation to ordinary treatment. There is certainly no reason why new sorts, containing the combination of qualities so desirable, should not be produced ; and though we would advise caution in their introduction, we would, on the contrary, give them a full and fair trial, and, if they stand the ordeal, reject such of the old sorts as are surpassed by the new : old prejudices should not be allowed to warp our judgment, and prevent us from availing ourselves of the most valuable grapes.

The strawberry does not cease to be an interesting subject of remark, and we have given our views in regard to their culture, and the peculiarities of several varieties. It is yet by no means exhausted. Since the appearance of our last article we have had occasion to look up some information, and we have been surprised to find what has been claimed as recent discoveries are in fact of rather ancient date. We may have occasion to refer to them hereafter. Our American cultivators having for twenty-five years zealously followed the cultivation of seedlings without corresponding results, the Belgians and French are directing their attention to the subject, and they appear to have been very successful, as the

La Constante of De Jonghe proves. Probably it will be some time, if not years, before another variety will be raised that will excel it. We have given it, with all the foreign kinds, a fair trial, and it alone possesses *all* the qualities that make a popular berry. It appears to hold the same relation to the Continental sorts that Hovey's Seedling does to American kinds, or Keens' Seedling to English ones. The late Belgian sorts, such as *Marguerite*, *La Sultanne*, *Emma*, &c., whatever their fruit may be, have not the constitutional excellences of *La Constante*, which alone can make them favorites. We consider it a remarkable production. The *Bartlett*, *Fillmore*, *Downer*, and other new American kinds, though undoubtedly very good, do not come up to the standard of excellence.

Orchard-house culture is still attracting attention, both abroad and at home. Mr. Rivers, the champion of the system, has found an able opponent in a correspondent of the *Gardeners' Chronicle*, who ventilates rather freely their alleged importance. If there are such doubts among intelligent English cultivators, how much more applicable are they in our climate, where all the best hardy fruits are grown in perfection in the open air. The last winter proved the value of these structures. In many instances the peach trees were injured almost as much as those in the open air. On this subject, Mr. Walsh, Mr. Hubbard's excellent gardener, takes exceptions to some of our late remarks, and asserts that we were mistaken in stating he lost his crop. We shall publish his communication in another number. We can only say that Mr. Hunnewell lost his crop in his cold peach house, showing the inefficiency of houses without the means of some warmth.

Mr. Alfred Chamberlain takes up the culture of fruits as ornamental objects, just as we cultivate flowers or plants. By a peculiar form of wire basket, for which he has secured a patent, he raises all the different varieties very successfully, as he has stated in his communication. Cultivating fruit in moss is no new thing; but the wire basket is new, and it appears well intended to make fruit culture doubly attractive from their ornamental aspect. The error we make is in

copying from English cultivators what is suitable for their climate, rather than adapting any species of culture to our own.

Desirous, however, to encourage every attempt at fruit culture, whether in the orchard house or open air, we have commenced the publication of a little treatise adapted to either, by an English Amateur, who has studied fruit growing on the Continent, and knows the obstacles to success in his own climate, freely admitting that in France they know little or nothing of fruit culture under glass, so favorable is the climate, and so much like our own. We can well imagine the comfort which a good dry orchard house must offer to the enthusiastic amateur, who could rarely become one if he had to labor in the open air in Great Britain. In a climate where a rousing fire is really comfortable in August, as it was when we visited England, the warm atmosphere of an orchard house must be a most agreeable place of resort and labor.

The introduction of new fruits has been somewhat limited the last year or two, while the growth of seedlings continues unabated. In pears some excellent acquisitions have been made in the Clapp's Favorite, Richardson's Seedling, and some others; indeed, our stock of American pears is becoming quite extended. But few new foreign kinds have fruited the last year. Mr. Rivers has produced some new peaches from our American sorts, but their merit is yet undecided. Our Pomological Gossip records, we believe, every variety worthy of notice.

FLORICULTURE.

If the exhibitions of our horticultural societies are to be taken as an index of our progress in plant culture, those of the past year would not only show increased interest in this department, and an earnest desire for the possession of the newest productions, but a higher condition and excellence of growth: in fact, our cultivators are rapidly coming up to the requirements of the English exhibitions, and there is no doubt they would, in every respect, equal them, were the same honors to be obtained. If they do not accomplish this

much it will be because the proper encouragement is not held out, while the demand is made for its fulfilment. The day has passed when amateurs and gardeners would deem it sufficient honor to receive a barren prize. A few very pretty plants, upon which no particular pains were spent in their culture, would be willingly carried to an exhibition for the double purpose of sustaining a young society, and fostering a taste for plants. But when the objects, which were once so remarkable, with the progress of taste and science of culture, have become too insignificant to attract attention, and the highest skill of the most intelligent gardeners required to produce magnificent specimens, a just recognition of such skill is demanded, not in the shape of a simple report, but in medals or prizes which rank in value with the labor displayed. So well established has this fact become, that should any leading society, in Great Britain or France, attempt to get up an exhibition on the pioneer system of thirty years ago, it would signally fail.

The London Horticultural Society's shows at Chiswick were ruined in experiments in this way, and the Society itself nearly shattered by the falling off in this its chief source of income. While it was lessening the prizes, and striking out many popular flowers, the Royal Botanic Society and Crystal Palace were augmenting theirs; the result was, that the Chiswick shows had neither competitors nor spectators, while the others were overrun with both. We deem it of vital importance to every society in the country, that would maintain a flourishing condition, to do everything possible to make the prizes worthy of competition, and in so doing demand that the objects shall be worthy the reward.

In anticipation of the general taste for ornamental foliaged plants, we have endeavored to gather all the information which would lead to their introduction and treatment, both tender and half-hardy. However opinions may vary in regard to the permanent popularity of the exotic kinds, there is no doubt that such sorts, as can be made valuable in the open air, will continue to be ranked among the most effective and decorative objects of the garden. The extent to which these are used in Parisian gardening we have already noticed, (Vol.

XXVII. p. 520.) It is undeniable that there has been too much of the same thing in the verbena, the petunia, the geranium, and other bedding plants. They are all different shades of the same habit and growth. Variety is necessary, and this the foliaged plants supply, while their massive growth is much more in keeping with the grander features of lawn and trees, in the near vicinity of which the old bedding plants look tame and simple. Without rejecting the one, or over-estimating the other, we would advocate the introduction of both in their proper place.

The rose, which should be considered the most beautiful of all garden flowers, attracts unusual attention abroad ; why it is so neglected here we are at loss to imagine. It is true our winters are rather severe for many varieties, but still there are so many that are sufficiently hardy, that there is no excuse on this score for their neglect. Can it be that we do not appreciate the rose ? and that our taste is so perverted that a bed of verbenas possesses more attractions than a plantation of roses ? We cannot believe it ; and yet the very limited way in which they are introduced to our gardens, or displayed at our exhibitions, shows a sad neglect. At one time the rose slug was the scourge of the plants ; but with the certain and well-known remedy it ceases to be less injurious than many other insects. Let us hope that increased attention will be given to the rose, that our horticultural societies will take it under their especial patronage, and our gardens become as redolent of their beauty as those of the French and English cultivators. What, indeed, can vie with the lovely blossoms of Jules Margottin, General Jacqueminot, Louis Peronney, Shakspeare, Madame Hardy, Boula de Nanteuil, Baronne Prevost, and other roses which anybody can grow.

To pass over the gladiolus and lilies, in our annual summary, would be to ignore two of our now most popular plants. Whatever may be the claims of various flowers, they fill a greater space of the floral year than any other two classes of plants. From July to frost they together reward the cultivator with an uninterrupted display of the most varied, exquisite and fragrant blossoms. The tulip is remarkable for its infinite variety of coloring, but the gladiolus seems to excel

it. The newer seedlings, so far from being reproductions, sport into the most bizarre tints, and unlike other flowers, many of the seedlings of which are often worthless, these all appear to be beautiful. The Japan lilies accompany and follow the gladiolus to the end of summer, and what they lack in variety they more than make up in richness of coloring, elegance of form, and fragrance; and their hardiness, free growth, and easy cultivation, adapt them to the million. The other lilies, too, are invaluable ornaments of the garden. The longiflorum, with its large snowy, trumpet-shaped flowers; the Brownii, of the same form, but reddish tinted on the outside; the atrosanguineum and its hybrids, with their blood-colored shades; the superbum, with its red and yellow spotted blossoms; the chalcidonicum, with its scarlet, and the philadelphicum, with its orange flowers, are all deservedly attractive and fine.

Other flowers and plants we might enumerate, among which are the Rhododendron and Azalea, the Pæony and herbaceous perennials. The first two are becoming more generally known, but they are far from being so extensively planted as they should be. No shrubs afford so much gratification as these; as specialities, to be planted in tastefully arranged groups, in properly prepared soil, or introduced in masses in the shrubbery, or near the flower garden, they form the most effective objects; the brilliancy and variety of the Azaleas, with the profuse clusters of the Rhododendrons, amid their broad deep green foliage, always delighting the lover of beautiful plants. An addition to our hardy shrubs, of the greatest value, is the well-known Scotch Heath, which has been found partially naturalized in our climate. Henceforth it may be extensively introduced into plantations of Rhododendrons, Azaleas, and Kalmias, succeeding them in its bloom, and continuing the beauty of a group till late in August.

Our herbaceous perennial plants have been altogether too much neglected. Entirely hardy, requiring but little attention, their flowers expanding from April to October, they should receive more attention. To give as much information concerning them as possible, we have from time to time presented such articles as would interest the cultivator.

Our own collection is now extensive, embracing some two hundred or more species, and we intend to bring a few of the less known and hardier kinds to more immediate notice by descriptions and engravings in the present volume, the first of which will be found in another page. If these shall induce their more extensive culture we shall feel that we have accomplished a good work.

We need not allude to the new plants of the year, as a careful reading of our Floricultural Notices will show what these are. We should not, however, omit to notice the Double Zinnia as a very great acquisition, which, when brought to greater perfection, as it undoubtedly will be, will form, next to the Aster, one of the most showy autumnal flowers.

ARBORICULTURE.

The introduction of the finer shrubs and trees, and the choice evergreens, though slow, is constantly increasing. With the exception, however, of the more common kinds, these are confined to the grounds of a few amateur cultivators. We regret that the taste for coniferous trees does not increase more rapidly. The winter of 1860 and 1861 was a severe test for the newer kinds, but it has settled beyond doubt the hardy character of nearly all that have been added to our collections; such as did not resist the cold being only adapted to pot culture, and protection in winter, all attempts to acclimatize them must be a failure. We regret to learn that Mr. Sargent, of Fishkill, N. Y., lost a few of his more beautiful specimens, among them the *Torreya taxifolia*, after having attained the height of eight or ten feet. Mr. Hunnewell's trees generally looked remarkably well the past autumn, and their progress henceforth will undoubtedly be rapid. We intend to give a list of every species and variety which has proved entirely hardy in his grounds.

To give our readers an opportunity to appreciate more fully the hardy Evergreens, both as respects their ornamental character, and their importance for shelter as well as their value for timber, our correspondent Evelyn has presented the results of his researches among the latest published works upon the subject, combined with his own experience, and gathering

from the best sources the most complete information regarding their growth and cultivation. Many acres of our New England soil have been seeded down to the Pine, and we see no reason why thousands of acres of waste lands may not be covered with a growth of young trees, which in twenty or thirty years would render them a great source of income. Gradually the supply of timber is becoming less and less, and forests remote from the seaboard, with the great cost of transportation, now yield the supply.

So important do we think this subject is, that we should be glad to see some aid given by the State, in the way of a bounty for the largest and best plantations. In this way, in a few years, large quantities of the best timber could be readily supplied at reasonable prices.

LANDSCAPE GARDENING.

But little progress has been made in Landscape Gardening recently. The projected Baltimore Park has been vigorously commenced by our late correspondent, Mr. H. Daniels, and from a notice forwarded us appears to be so far completed as to have a portion of it open to the public. Little else appears to be required than laying out roads and walks, clearing openings, and thinning out the trees, which already cover a large portion of the Park.

We have heard little of the progress made in the great New York Central Park the last year, but presume the work has been vigorously pushed, as it must necessarily be, to complete it in a reasonable time.

In the dearth of general improvement we must defer extended remarks until another opportunity.

HORTICULTURAL LITERATURE.

At no period, during the last twenty years, has there been so few gardening works issued as in that of 1861. Indeed, we cannot name any very prominent book. The *PARLOR GARDENER*, a little manual, has appeared, giving some brief directions for the treatment of in-door plants. The *TRANSACTIONS* of the American Pomological Society were issued in a neat form, creditable to the Society, and make a volume of 260 pages.

The yearly publications of the New York State Agricultural Society, and the Agriculture of Massachusetts, have regularly appeared, and are volumes of great interest. Until more prosperous times our cultivators will have to rely on the periodical literature of the day for the latest information upon horticultural science.

OBITUARY.

In addition to the names of those already noticed, we record the following, who have deceased during the year:—**J. E. RAUCH**, of Brooklyn, N. Y., one of the most intelligent and active gardeners in that city. Mr. Rauch was born in Bremen, in 1818, where he studied medicine. He visited this country with the intention of engaging in botanical studies, and after two or three voyages to South America, where he was taken dangerously sick, he returned to Brooklyn, where he devoted himself to the cultivation of plants and flowers, especially the rare and choicer kinds. He was energetic in organizing the now flourishing Horticultural Society of Brooklyn, and contributed extensively to its exhibitions. Kind and generous to a fault, his loss will be deeply regretted. Professor **J. G. C. LEHMANN** of Hamburg, died on the 12th of February, 1860, in his 68th year. He was a botanist of note, and the author of many scientific works. Dr. **J. F. KLOTZSCH**, keeper of the Royal Herbarium, at Berlin, died in November last, at the age of 55 years. As a systematic botanist, he worked industriously; his monograph of the Begoniaceæ, and his papers on Euphorbiacæ, are examples of labor.

LOUIS DE VILMORIN, one of the eminent seedsmen of Paris, died in March last, at the age of 44 years. M. Vilmorin was a frequent contributor to the *Revue Horticole*, and other journals of Paris, and rendered essential service to the cause of horticultural science.

JOHN E. LE CONTE, formerly a Major in the United States Topographical Engineers, died at Philadelphia last winter. He was a zealous contributor to botanical, zoölogical, and entomological science. Major Le Conté resided in Georgia for a long period, but the latter years of his life were passed in Philadelphia. His first contribution to Botany was a Catalogue of the plants growing spontaneously on the island of New York.

ON THE VALUE OF CERTAIN INSECTS.

BY WILSON FLAGG.

WE are in the habit of regarding all insects, except those which like the bee and the silkworm are directly profitable to us, as pests that ought to be exterminated from the face of the earth. Yet insects of every species undoubtedly subserve an important purpose in the economy of nature; and the evil that comes from them is chiefly due to their excessive multiplication. Birds would equally become a pest if they were multiplied beyond a certain extent. The difference between the two cases is, that birds are so easily destroyed, and offer so many temptations to the gunner, on account of the value of their flesh for food, and the sport which the pursuit of them affords to young men and boys, that it is difficult to prevent the most valuable species from being exterminated. Insects, on the contrary, are so minute, their habits are so secret, and their abodes, in the early stages of their existence, so concealed; they multiply so rapidly, and are taken with so much difficulty, that we are obliged to use every conceivable method to prevent their consuming all the products of the earth. Their very minuteness becomes their protection.

My present object, therefore, is not to say anything in favor of the protection of insects, because they are perfectly safe in spite of all that can be done for their destruction. I wish simply to point out their general usefulness in the economy of nature, and the importance of certain species, by destroying and keeping in check the multiplication of other injurious species. Of the useful insects, which are made articles of commerce it is needless to say anything.

Nature has not only employed birds and certain small quadrupeds and reptiles, to preserve the insect race from over-multiplication; but there are also numerous predatory tribes of insects that feed, as it were, upon their own kind. The fly, called the *musca aplii ivora*, lives upon the tree-louse; the hornet and wasp-fly upon the *musca-aphidivora*; the dragon-fly upon the hornet and the wasp-fly, the spider

upon the dragon-fly, and all indeed have some enemies in some particular species. The *monoculus*, or water-flea, delights in putrid waters; the gnat eats the water-flea, and the frog eats the gnat.

Many insects at once promote their own good and that of other animals. Thus gnats lay their eggs in stagnant and putrid waters, and the grubs that spring from these eggs clear them of all putrefaction. This will easily appear, if any one will make the experiment, by filling two vessels with putrid water, leaving the grubs in the one and taking them all out of the other. He will soon discover that the water containing the grubs has become purified and free from stench, while the water that contains no grubs remains foetid.

There are beetles which in summer reduce the droppings of cattle to a mere friable loam, which, like saw dust, is easily scattered over the soil by the feet of men and animals. This not only fertilizes the soil, but prevents the herbage that lies under these heaps from being destroyed. There are other insects or worms that cause a portion of the hardest rocks to be converted into soil. Testaceous worms have the power of thus eating away the substance of rocks. That species of shell fish called the razorshell, bores through stones in Italy, and hides itself within them, thus assisting nature in dissolving the rock, and changing it into profitable loam. The people who eat them are obliged to break the stones in order to obtain them. The cochlea, a kind of snail that lives upon craggy rocks, eats and bores through the chalky hills, as worms do through wood.

There are not many persons who would subscribe to the views of Professor Biberg, who says, "The caterpillar or grub of the *Phalæna calamitosa*, although it feeds upon grasses, to the great destruction of them in the meadows, yet it seems to be formed in order to keep a due proportion between these and other plants; for grasses, when left to grow freely, increase to that degree that they exclude all other plants, which would consequently be extirpated unless this insect sometimes prepared a place for them. Hence always more species of plants appear in those places where this caterpillar

has laid waste the pastures the preceding year than at any other time.

Gedner thinks that insects may be considered valuable, if for no other reason, because they nourish and support the singing birds. "Those minute insects," says Gedner, "called *tree-lice*, that live upon the branches of trees, are devoured by flies, cochineals and golden-eyes, in their first state, and many small birds feed upon them; and these not only delight us with their fine songs, but afford us most delicate food. The nettle is a small plant which is scarcely eaten by any domestic animal; but the Author of nature has allotted to it more feeders than to almost any other plant, such as butterflies, moths, weevils, chermes, which devour it almost entirely; and these insects are a prey to many birds which could by no means immediately live upon the plant. Minute aquatic worms, and these, in no small number, are eaten by the larger, and these are eaten by the fishes and aquatic birds, and these latter by us; and beside food, these birds supply us with the most delicate feathers to repose ourselves upon. It would be tedious to enumerate all the mediate advantages which we obtain from the most contemptible creatures."

The same author remarks further, "We are ready enough to put a due value on the larger animals, but many look on the minute tribe of insects, rather created to torment than to be useful to mankind. We grant that they are very troublesome to us. But is, therefore, all care about them to be given up? By no means. On the contrary, we ought to contrive means to get rid of them, that they may not destroy both us and our possessions. This cannot be brought about, unless we know their nature; when that is known we shall more easily find out remedies against them.

"The use of insects has been sufficiently explained by De Geer, in an oration before the Academy of Sciences at Stockholm. Another of my fellow-students has undertaken to explain what damages insects of various kinds do us; and another now is actually employed in showing what kinds of insects live upon every plant. This makes it unnecessary to enlarge upon the mischiefs done by insects. I will only, in a few words, mention *that we shall never be able to guard our-*

selves against insects but by means of other insects. For as we make use of dogs and other beasts in hunting down stags, boars and other animals, which do us much damage in our fields and meadows; or as hawks may be bred up to assist us in taking other birds, so also we might make use of the fiercer kinds of insects, in order to get the better of the rest of these troublesome animals. We shall never be able to drive bugs out of our houses, before we introduce other insects that will devour them.

“We have no easier method of destroying gnats and flies, which cause us so much disturbance, than by providing ourselves with *libellulæ*, that devour them. We often find our largest trees entirely stripped of their leaves by caterpillars of the moth kind. But when we search for them, we find they are sometimes eaten up by the larger kind of *carabi*, called *sycophantæ*. Hence we may learn that there is no remedy more efficacious in our gardens, when leaves, flowers and fruits are almost every year destroyed by those caterpillars, than gathering and preserving the above mentioned *carabi*, till they lay their eggs; and then placing them at the roots of trees, in rotten wood, till they are hatched. And thus we should effectually guard our trees from these inhospitable guests.”

Nearly a century has elapsed since the paragraph above quoted was originally published; still the public has not acted upon the advice which the author has given. Though the expediency of such a practice is extremely doubtful, I have never yet heard of any series of experiments made to test its practicability. Though we know that millions of injurious insects are daily killed and devoured by other insects, it would not seem to be an easy task to make use of the predatory tribes in such a manner as to derive much benefit from their services.

I will, however, enumerate some other species which are predaceous; and as my information is compiled from various sources, I shall probably repeat several facts more than once. Among the beetles, some of which are very destructive to vegetation, are several predaceous species; such are the tiger-beetles, the ground beetles, lady birds, that habitually prey

upon caterpillars, plant-lice, and many other injurious insects. Dragon-flies prey upon gnats and mosquitos; and the larvæ of day-flies, of May-flies or cadis-worms, and of senibilians, all of which live in the water, devour aquatic insects. The lace-winged flies, in their larva state, live wholly on plant-lice.

Caterpillars and several other destructive insects are destroyed by enemies within their own bodies, such as the larvæ of the Ichneumon flies. Some of these flies are very small and confine their attacks to the eggs of other insects. They puncture them, lay their own eggs in them, and the grubs produced from them live upon the substance of the eggs in which they were deposited. Wood-wasps, and several kinds of sand-wasps, mud-wasps and solitary wasps are also predaceous; providing their young with other insects for food. Ants also seize and destroy a great many insects. The paper-making wasps feed their tender offspring with the softer parts of other insects, which they destroy for this purpose. There are many wood-eating insects that, when transformed into flies, make some amends for the mischief they do, by preying on other insects. Others, though not predaceous in their winged state, deposit their eggs among plant-lice, on the juices of which the young afterwards subsist. Some species lay their eggs in caterpillars, and on other species of larva, and the maggots are hatched within their bodies, and live upon their substance, finally destroying them. Others drop their eggs in the nests of insects, whose offspring are starved to death, by these cuckoo flies that take it away from them.

It would seem from these facts, that the predaceous insects and the devourers of vegetation are so blended together, some being insectivorous in one state and granivorous or herbivorous in another state, that it would be entirely impracticable to make use of the services of one species in order to exterminate another sort. All that it would be advisable to do, in this direction, is to make use of such services, in some particular instances: but as a general rule we must depend on our own industry and invention for checking the over-multiplication of noxious insects, and above all things, take

care that the numbers of birds, all of which are insectivorous to a certain extent, be kept fully equal to the supply of insects upon which they feed. At the same time we may rest assured that Providence has provided amongst the insect tribes, domestic enemies belonging to their own family, of sufficient importance to keep them from becoming too powerful for the safety of other animals.

But there are other services performed by insects which it may be well to briefly mention, to show that they are not without value; and probably do indeed produce more good than evil, though the evil they do is more apparent to us, and is in great measure the result of our own improvidence. As Dr. Harris remarks in regard to this matter:

"We not only suffer from our own carelessness, but through ignorance fall into many mistakes. Civilization and cultivation in many cases have destroyed the balance originally existing between plants and insects, [between birds and insects] and between the latter and other animals. *Deprived of their natural food by the removal of the forest trees and shrubs*, and the other indigenous plants that once covered the soil, insects have now no other resource than the cultivated plants that have taken the place of the original vegetation. The destruction of insect-eating animals, whether quadrupeds, birds or reptiles, has undoubtedly tended greatly to the increase of insects. Colonization and commerce have to some extent introduced foreign insects into countries where they were before unknown. It is to such causes as these that we are to attribute the unwelcome appearance and the undue multiplication of many insects in our cultivated grounds, and even in our storehouses and dwellings."

The greater part of the insect tribes may be regarded as the scavengers of nature; their services in her economy being to remove carrion, decaying vegetable substances, and all kinds of filth, upon which their larvæ subsist. Such are the rove-beetles, carrion-beetles, bone-beetles, dung-beetles of various species. Many coleoptera live entirely on substances which if not devoured by them would soon become putrid in their decay; such as agarics, toadstools, and poisonous mushrooms. There are many others that live only on the decaying timber

of trees, and thereby hasten its decay, and contributing their aid to reduce them to productive soil. Such are the stag-beetles, the bark-beetles, and spring-beetles.

“Some flies (says Dr. Harris) are entirely harmless in all their states, and many are eminently useful in various ways. Even the common house-flies and flesh-flies, and others, render important services, by feeding, while larvæ, upon dung, carrion, and all kinds of filth, by which means, and by similar services rendered by various tribes of scavenger-beetles, these offensive matters speedily disappear, instead of remaining to decay slowly, thereby tainting the air and rendering it unwholesome. Those whose larvæ live in stagnant water, such as gnats (*Culicidæ*,) feather-horned gnats (*Chironomus*, &c.,) the soldier-flies, the rat-tailed flies, &c., tend to prevent the water from becoming putrid, by devouring the decayed animal and vegetable matter it contains. The maggots of some flies live in mushrooms, toadstools, and similar excrescences growing on trees; those of others in rotten wood and bark, thereby joining with the grubs of certain beetles, to hasten the removal of those dead and useless substances, and make room for new and more vigorous vegetation.”

We may conclude from all these facts that insects are as useful to man as any other animals; that they are not created to afflict us or to do us any evil; but that they become pests when they multiply beyond a certain increase. To prevent this increase, birds are the principal agents in the economy of nature; and on them we must always be chiefly dependent for this purpose. Without the agency of birds, all artificial appliances and inventions, though useful in a limited extent, must be utterly unprofitable and vain.

CORDON TRAINING OF FRUIT TREES,

ADAPTED TO THE ORCHARD HOUSE AND OPEN AIR CULTURE.

BY REV. T. COLLINS BREAHAUT.

IN our favored climate, where all the various fruits can be raised to perfection in the open air, with very little or no care,

few attempts have been made to adopt the system so actually necessary to produce many of the same fruits in the cooler and moister climate of Great Britain, from whose skilful cultivators we have hitherto gathered so much of our gardening information. It is true that in some of the old gardens, and even in a few of the more modern ones, there may be found the old rectangular walls, yet covered with trained trees, though far from being very symmetrical specimens; but these are so very rare that it may be said this old system, absolutely necessary in a different climate, has become obsolete under our bright sun and warmer atmosphere. In fact, the symmetrical and truly beautiful representations of trained trees, which embellish the many volumes of English horticultural works, and excite the wonder of cultivators, exist nowhere in our country.

But in ignoring garden walls, because they are not needed, it was not necessary that we should reject the symmetrically trained trees. The espalier, or trellis, is easily and cheaply constructed, and answer every purpose of the old wall. To these the trees can be trained, and they often fill a place where they can be made both ornamental and valuable. The very highest development of many fruits is obtained under this species of culture, and as the training of trees is an occupation, both pleasing and interesting, the amateur who wishes to see what skill can do when exercised in this way, and who has a love of symmetrical forms, can have the opportunity to gratify his taste. Just as we appreciate a symmetrical dwarf tree, though the fruit may be no better than from one left to its own growth, just so we become fascinated by the artificial forms they may be made to assume, especially when these forms repay us in an abundance of the most splendid fruit. As taste increases, and wealth accumulates, trained trees will become more common, and as in this, as well as other departments of horticulture, great improvements have been made, we deem it a pleasure to introduce to our readers the latest methods that are now attracting attention, that all who may wish to adopt them may have the requisite information to insure success.

We have already given a full account of the new method

of training, first adopted by Dubrueil, and as simplified by him, called the Single Oblique Cordon Training, (Vol. XXV. p. 452.) By this method the trellis is covered in three or four years, and the trees begin to produce abundant crops, while by the old plan ten years were required, with little or no fruit during the whole period. But, what is all-important, especially in our country, where the practical skill is difficult to be had, the new method is so simple that any one, with moderate judgment, cannot fail of success.

The whole subject of Cordon training has been made the study of a clergyman in England, who has, after fifteen years' experience, published a little treatise illustrating his method, and though differing somewhat from Dubrueil, in preferring the triple to the single cordon, on account, as he states, of the difference of climate, it does not lessen the value or materially detract from the usefulness of the work. For whether the cordons be single, double, or triple, the result is the same, a little more patience, time, and skill being required, as the cordons or stems are increased; and as our climate is unlike that of England his objections to the single cordon have no application. We may adopt the latter safely, whether in the orchard house or open air, with just as good results as have attended the system in France.

But it is more the general hints upon fruit culture and the details of management that render Mr. Bréhaut's work exceedingly valuable. He is an enthusiast in fruit culture; he is a close observer, and as his success has been the result of careful experience, he is enabled to point out those important details which the amateur so much needs, but which the thorough cultivator so often overlooks, or thinks unnecessary to notice.

As the Treatise is short we propose to copy it entire in our future numbers, making such comments as the difference of climate may suggest, to adapt it to our cultivators. We believe it will be read with much interest.

It will be noticed by the introductory remarks, that Mr. Bréhaut is a great advocate of orchard houses; but at the same time it will not be forgotten that this is in Great Britain, where, as he says, "a liberal use of glass enables us, even

without artificial heat, to obtain dry and equable temperatures, which rival the climate of the most fertile portions of France." As sources, however, of amusement, as well as healthy places of resort in unfavorable weather, the orchard house is a pleasant acquisition. For the culture of the peach alone, they will undoubtedly be extensively introduced, and with a miscellaneous collection of fruits, always ornamental, cannot fail to become, with the greenhouse and grapery, favorite appendages to a complete garden.—Ed.

INTRODUCTORY.

Most books, whatever their size or subject, are better understood for some sort of prefatory remarks, and in an age and country in which horticulture meets with such high patronage, it may seem presumptuous for an amateur to treat of such a subject; it may appear uncalled for; and it may even require explanation of his motives.

This feeling is not altogether without its uses, and the author hastens to say, that this short work is the result of much leisure time, which an enforced idleness, the result of over-fatigue in the charge of a large parish, unexpectedly created.

Summer after summer, and winter after winter, was passed by him abroad. It was impossible to be unemployed, and thus he was enabled to observe the various modes of fruit culture practised in different countries.

This is an advantage, which is not always within the reach of the most experienced gardener. But with the exception of certain indigenous fruits, it is not necessary so to wander to be convinced of the inferiority of continental gardening, taken as a whole, compared with that of England. It is only as we return northwards, that we can appreciate the skill by which the very necessities of climate have led to the introduction of methods which have more than compensated for the want of sun heat. A liberal use of glass enables us, even without artificial heat, to obtain dry and equable temperatures, which rival the climate of the most fertile portions of France; and this without risk of damage from the spring frosts, which, in those localities, are so injurious to vegetation.

It is not too much to anticipate the day when every small garden will be considered deficient in one of its most indispensable requisites, if it fail to have its orchard house, as well as its modest vinery. Persons of moderate means will ever find the orchard house a source of amusement and profit. It is easy to construct; equally easy to stock; the management is simple and readily understood, and the author is very desirous of showing how a moderate amount of expense will enable any one to be his "own gardener," and be thus liberated from a degrading dependence on the caprice of unskilled men.

To his brethren, the clergy, scattered in villages, and thus necessarily somewhat dependent on the limited resources which these can supply, it seemed to him a grateful task to state his own experience, and if he shall be able in any degree to simplify the practice of fruit culture, and thus save a portion of their invaluable time, his own labor will certainly not have been thrown away.

There is no doubt that fruit culture is, as yet, very imperfectly understood, even by scientific men. Great advances are, however, being made daily in this interesting branch, and it is certain that few things tend more to further this progress, than a simple and honest description of experience. Every one can thus greatly judge for himself; and, by comparing his own observations with the notes made by others, who are not more skilful, but who have more leisure, he may reach a certain standard, which must be of immense value in practice. It is difficult to account for the reticence observed in these matters, and this is, doubtless, one great reason why we do not advance as we should.

At the same time it is absolutely necessary to be cautious in drawing conclusions from isolated facts. There are many concurrent circumstances to be taken into consideration, which are not always allowed, at the time, to have their due weight. It thus often happens that the observer who feels almost certain of some new and important discovery, has too often to recant his errors before the close of the season. All these doubts greatly check and embarrass the amateur, but they have their uses in preventing rash and vain experiments,

as well as in saving unnecessary expense. But in cases where, after a certain time allowed for reflection, a succession of ascertained results have arisen, any one, actuated by the simple desire to communicate his own advantages to others, can never be open to censure. A man who does this only fulfils his duty.*

The author, as stated, had been in delicate health for a long period; and this cause has rendered him desirous of making known to invalids the benefits arising from the study of fruit-culture, which in all its branches is so suitable a pursuit for such persons. In the form of orchard-house culture little can be better adapted to restore health; for from the dry state of the atmosphere, and the free circulation of air uncharged with the odors emanating from flowers, a walk in almost all weathers is secured; while the mind, diverted from gloomy thoughts by the sight of the beautiful young trees, either in full blossom or laden with fruit, or even in their rest, gains a healthful tone, and finds all suggestive in the highest degree. The writer never suffered, as he feared, from draughts of cold air; though, of course, common precautions must be observed, as in rough weather, or in periods of frost.

His own orchard house has been to him a source of untiring pleasure, and he has learnt in it more of the habits of the various trees than could ever have been expected under the old systems. The variety of the trees is so great, their habits and products are so different, that the attention is soon arrested, and the cultivator cannot avoid remarking all this. But if, in addition, he has the patience to follow up the seasons, note-book in hand, it is truly astonishing how much a mere

* These are invaluable hints, and should be well considered. We know of nothing that has so much retarded true progress as the publication of so many so-called important discoveries in cultivation, which are trumpeted as the basis of all success. These engage the attention of young amateurs, and often older practitioners, who, led away by the apparent success of the discoverer, change their whole course of culture just in time to learn that the "important discoveries" are an entire failure. If this was only once it would do no great harm, but hardly has the cultivator recovered from his failure before he follows some other equally wild notion, to be in turn attended with no better results. The advice of the author to follow only well-known authorities is of the utmost importance.—Ed.

amateur may quickly and readily learn. Open-air culture, has, of course, its own peculiar charms, though not so fascinating, and no doubt is preferable in very hot weather.*

Another motive which presented itself, was the wish to make known the decided success of a *novel method* of fruit culture, called generally "Cordon Training." One form had been found extremely adapted for the back wall of a lean-to orchard house; this was the Diagonal Cordon, with three leaders,—a form which may be considered as the perfection of the whole method. It has a certain resemblance to the single oblique training practised so successfully at Montreuil, near Paris; very important modifications were required, however, before any practical result could be depended upon.

The climate of France is so different from that of England, that what is proper in the one case becomes almost useless in the other; and the whole system now presented to the public is so altered, so combined, and, in the case of orchard-house culture, so fundamentally different from the French system, that it may be considered as a *separate method*, originating from several others. Examples of this will abundantly occur as the various forms are entered into and described. It will be sufficient here to state, that the repeated summer pinchings, by which the shoots on the spurs are rendered compact and fruitful, are partly described in a work published in 1812. This suggested the system put in practice at Chartres very lately. In the orchard house it must soon supersede any other, and is recommended in the eighth edition of Mr. Rivers's excellent work. Of course in the case of Diagonal Training, important modifications have been introduced, rendered necessary by the angle at which the trees lie, and also by the exigences of the climate.

As the French have no cultivation worth mentioning under glass (and indeed it is only in England that this invaluable advantage is properly appreciated), the treatment of

* Our American climate fortunately is sufficiently warm and genial to remove all the trees in orchard houses to the open air in June, or the sashes may be removed with safety. If orchard houses are found less preferable for labor during hot weather than the open air, in England, they would be far more oppressive here. But this objection does not apply with us.—ED.

these spurs requires peculiar changes, more especially in the case of potted trees, in which the scientific research of Mr. Rivers has created a new field.

With respect to the actual results as yet obtained, the back wall of my orchard house, which is a lean-to, produced this year at the rate of three peaches per square foot.

On this wall alone the produce was at the rate of 600 fine peaches and nectarines (some of the former were nine inches in circumference), so that a house 100 feet long and proportionately broad, might reasonably be expected to produce 2000 nectarines and late peaches on the back wall, and at least as many more apricots and mid-season fruits upon the rows of trees in pots.

This crop, by no means an extraordinary one in fair seasons, could reasonably be hoped for by following the Cordon Training which is here described.

One word more as to the expense of orchard houses. At the usual rate, one 30 feet long by 12 broad, should not cost more than £30. The returns for this outlay would be great under fair management, the more so as £3 or £4 in addition would be sufficient to stock the house with trees, half of them in bearing state. A week's visit to the Continent would cost quite as much as this handsome ornament to a garden would, and afford, in the course of time, far more real amusement.

GENERAL PRINCIPLES OF FRUIT CULTURE.

The details, brief as they are, of this work, would not readily be appreciated if a few general principles, obvious and reasonable, were not first stated. General maxims are often neglected in practice, so that it becomes necessary to repeat them in a short work such as this, because they render the details more intelligible.

Many unskilled persons assert that the scientific culture of fruit trees has neither the effect of increasing their productive powers, nor of prolonging their vitality. Both these statements are untrue. Experience has fully proved that certain principles are necessary to be followed; under these the results have been good: it is the deviation from them that is the cause of failure.

It seems pretty certain that the office of the ascending sap is to nourish and increase the volume of the whole tree, while, by its passage through, and change while in the leaves, and by its return to the roots, it promotes the production of fruit. The sap becomes stored up, and ripened by the action of light and heat, and in proportion as this action is retarded or augmented, the tree is either productive or barren. A certain action communicated to the sap will develop the whole system in redundant wood. All this is modified by attendant circumstances, but it is the general rule.

To regulate, distribute, and harmonize all these functions is the duty of cultivation, and surely the preservation of the balance between root and branch, and between fertility and extension, can but have the effect of increasing the amount of production, and also, by economising the vitality of the tree, lengthening its life.

The locality chosen for any particular tree is of great importance, and demands much reflection. In this the amateur must submit to be guided by the experience of others, while he carefully observes for himself. Before any final decision, he should make a tour of the gardens in his neighborhood. He should attentively note the varieties which flourish best in the soil and aspect which correspond with those in his own garden. The fruits most common in the neighboring markets should also be considered, unless they are of an inferior description. These observations will not appear trivial to an amateur. Every one has experienced the value of such things who has commenced a career of horticulture. In these cases a reference to the catalogue of a respectable nursery is invaluable, and may also be a great subject of amusement.

One hint more. In selecting the trees, let no one be influenced by the mere price, for it is of the *greatest importance* to have well grown and healthy trees to begin your experiments upon and to avoid discouragement in the outset.

The selection then being made, the amateur should remember, that the natural tendency of the sap is to flow upwards and towards the extremities of the branches, so that without due care, especially at the commencement, the centre of the

tree, and the lowest branches (in the case of those on walls) become less vigorously stimulated, and are thus dwarfed in comparison with those higher up. This will cause an unequal distribution of fertility, and quickly destroy all the harmony and symmetry of the tree. The leaves, according to their number and healthy state, draw up and attract the sap. Therefore a branch, once enfeebled, has by its *very want of power*, an increased chance of decay. We must, therefore, endeavor to avoid this feebleness.

Again, by this irregular distribution of strength, the whole tree is disturbed, and eventually ruined. For when in this diseased condition it receives any shock, as by an attack of blight (perhaps by two or three successive attacks); by injury to its roots from any cause; by any of its branches breaking in a gale of wind; the first irregularity of form becomes so considerably augmented, that few trees are able to remedy this defect by a spontaneous effort of nature, and the expectations of years become frustrated in a single season.

When, then, we perceive a commencement of this want of due vigor in any branch, we must hasten to remedy it. There are various ways of obtaining this object, but I refrain at present from mentioning many of them. One excellent plan is to allow a *larger* number of leaves on a *weak* branch than on a strong one. The reason for this has been stated above. The leaves are the lungs of the tree, and attract and modify the sap, which is little altered till it reaches the leaves. When it does reach them, it ceases to be sap, properly so called; it becomes the "proper juice." Discharged into the bark, it is thence carried, by cellular channels, throughout the tree.

From this "proper juice," that is, converted sap, the fruit attracts what it needs to produce flavor. The more the tree secretes the better. Pruning and training here play a great part. By removing a great portion of the leaves on a vigorous branch (cutting them in two is the best), and by allowing as many as possible on a weak branch, we equalize both. Removal of some of the leaves produces flavor in the fruit. But we speak here, chiefly, of the growth of the tree, and its regulation. Another method of strengthening a weak branch

is to untie it from the wall, and allow it to swing loosely in the free play of sun and air on all its sides,—one, at least, of which would otherwise receive nothing. Of course, then, to tie down a branch to the tree has a contrary effect, and the more we approach the horizontal position, not to speak of the extreme method of bending it downwards altogether, the more the branch is checked in its development outwards. So, if it is desired to lengthen a branch, it must be directed upwards; and a branch tied, for a season, vertically, and exposed at the same time, in wall trees, to the free action of light and air, will grow much more rapidly than another tied to the wall, and carried into a horizontal line. This is a useful maxim to remember, because it may be so readily applied in nearly every case that can occur.

If we wish to give a temporary check to a too vigorous branch, we must diminish the number of *leaf-buds* on it, and allow a rather too abundant crop of fruit on the *fruit-buds*, while, at the same time, the weaker side should be raised vertically, and not allowed to bear at all. Of course the tree will not look so pretty in this way for the season, until the winter pruning shall harmonize the whole; and this is often a reason for neglecting this very useful plan. By pinching off the green ends of branches some time before the others, those first reduced in length are checked in their growth, because they have not so many leaves from being shorter.

In case of great necessity, you may even cover over the leaves of a strong branch with some light but impervious material, for a week at a time. It should be *no longer*, taking care to observe if the foliage becomes injured or not. Nevertheless, I do not recommend this method, which is more practised in France than in England.

If it be wished to prolong any branch (no matter its vigor) we must concentrate the whole power of the sap into *one or two buds* by cutting down to them, taking care that these buds are healthy, and, above all, placed *exactly* as the new extension is desired to be. *Terminal buds* are always more vigorous than lateral buds, because the sap is conducted more directly to them. To lengthen a branch, always remember to cut well down to the bud selected for the new shoot, not,

however, so near as to weaken it, but near enough that nothing useless be left beyond, because, during the drying up of that part, the bud is checked, and the object is to advance its growth. To obtain fruit-buds, on the contrary, every aim must be directed to keeping them, for one or two years, as the case may require, in a dormant state. To effect this, you must divert the full current of the sap away from them, so that it shall pass them by, but without completely drying them up, which would be a great fault. A leaf-bud or two must, therefore, be suffered to extend *beyond* any flower-bud, *i. e.*, one properly so called. The sap having passed vigorously up the main conduits of the tree, and in the leaves having been converted from sap into "proper juice," must be so diverted from the flower-buds as only to nourish their fertility without causing them to elongate in the form of branches. Nevertheless, in the case of the peach, should any bud remain absolutely dormant for two seasons, it will hardly ever be developed at all.

When trees have obtained a certain size, their ramifications have the effect of diminishing the rapidity of the circulation of the sap; and thus it is that trees of a certain age are more productive than those which are young: for the sap has so many irregularly-disposed branches to supply, that it cannot well stimulate any single part and pass by the rest.

By cutting your leading branches very short for a number of seasons, as in the case of that absurd form now happily abandoned—the "pillar" or "quenouille"—the tree becomes fruitful, it is true, but at the expense of size, form, and beauty. In the case especially of standard trees, by pegging down any too vigorous branch, it is completely checked, for the reason stated previously; but in this case the lateral shoots, becoming *vertical*, have an extreme tendency to grow, and require incessant pruning. This rule is applicable to young growing trees, chiefly pears and apples; but if applied to an older tree, *and all the branches* should be thus bent downwards, then as soon as the tree becomes more fruitful, the branches should be loosened, and they will retain a sufficient inclination to obtain the required result. The ends would otherwise dry up, and the vertical shoots, absorbing all

the sap, would become converted into wood-shoots of great vigor and difficult to restrain. In some cases the tree would be exhausted by excess of production.

One maxim more, and this part is ended. By removing the earth from the principal roots during the summer, so as to expose them to the air, the tree is much checked in its vigour. This shows the danger of growing crops too near the roots, as, independently of the exhaustion of the soil thus induced, the risk of injury from the spade and removal of the surface is very great. For this very reason, transplanting an unfruitful tree often makes it bear well, when other methods have failed.

POMOLOGICAL GOSSIP.

REPORT ON GRAPES BY THE ROYAL HORTICULTURAL SOCIETY. The fruit committee of the society, whose duty it is to examine fruits, have made the following report on grapes:—

Early White Malvasia and Burckhardt's Amber Cluster. These proved to be synonymous. When the latter fruited in the garden during the past two seasons, the Early White Malvasia was not in the collection, and, as it could not be identified, it was supposed to be a distinct sort. After a close comparison this season, there can be no doubt that the two are perfectly identical. There is every appearance that Early Kienzheim will also prove synonymous with Early White Malvasia.

Smith's Sweetwater. This is not exactly a sweetwater, but a form of Royal Muscadine, to which it bears a considerable resemblance. It seems, however, to differ from Royal Muscadine grown along with it, and was particularly rich in flavor, while the latter was comparatively deficient in that respect.

Stillman's Sweetwater is a true sweetwater, with a good-sized cylindrical well-set bunch, with large transparent-skinned berries. This was compared with Chasselas Vibert, which is so like it as not to be known apart; the latter, however, is firmer, and more crackling in the flesh, than Stillman's Sweetwater, but decidedly inferior to it in flavor.

Foster's White Seedling is a fine grape, with a large showy bunch, well set, with rather large roundish-oval berries, and is quite distinct in character from either the Royal Muscadine or the Sweetwater. As an early grape, it ripens with the Royal Muscadine, and is of first-rate quality.

A white grape, from a vine presented by Mr. Whiting, of the Deepdene, and named Syrian, proved to be very different from that variety, and had more the appearance of the White Lisbon, imported from Portugal during the winter months. The fruit is large and white, with a transparent skin, showing the texture of the skin below. The flesh is fine and crackling, watery and sweet.

Mousca preta, a small round black grape, and a small bunch. The flavor is sweet but the grape possesses no merit.

Muscat St. Laurent and Muscat Ottonel are two very small-bunched and small-berried Muscat grapes. They have the full Muscat flavor, but the flesh becomes mealy, and neither of them has any merit besides earliness. They ripen before either the Royal Muscadine or the Sweetwater, and in the opinion of the committee are not worthy of cultivation, except as objects of curiosity. Being so early might they not ripen out of doors, against a wall, as freely as Black Cluster or the Sweetwater?

Muscat Hamburgh. There was a very good bunch of this variety, and the berries were well developed and well colored. The great fault that has been found with it as grown in the garden in pots is, that a large proportion of the berries are undeveloped. In this case, however, they were not so, and were of good size, rich in flavor, and with a very marked Muscat aroma.

A seedling grape was received from Mr. Thompson, gardener to his grace the Duke of Buccleugh, Dalkeith Palace, accompanied by the following communication from Mr. Thompson: "The vine sent is a seedling raised from the berry of the Muscat of Alexandria crossed with the pollen of Chasselas Musqué, in the year 1859. In March, 1860, the seed was sown, consequently the vine was only eighteen months old when the bunch was cut. Last year the vine had all the appearance of being a pure Muscat, and when it broke into leaf this season it was

obvious the cross had not taken effect, and when the berries were set I did not feel certain that it was far removed from the Muscat, and thinned the bunches more than they ought to have been, which gives the bunch a less compact appearance than it otherwise would have presented. The bunch sent is one of two on the same branch. The vine, though not stronger in spring than a straw, has borne six bunches; they are ripe while in the same house—which has only had an occasional fire during cold weather—the Golden Hamburg will not be ripe for a month, the Black Prince just beginning to change color, and Bowood and common Muscats are both quite green. Many gardeners who have tasted the grape here this month, think it combines the Muscat and Chasselas Musqué flavor, but of this your committee will be the proper judges.” The bunch sent by Mr. Thompson was nine inches long, of a long tapering shape, well set, and not shouldered. The berries were quite small, round, of a pale greenish color, and covered with a bloom. The flesh tender, juicy, rich, and sugary, with a fine piquancy, and with a distinct trace of the Muscat aroma, but not so strong as a Chasselas Musqué or the Frontignans. The committee were of opinion that the flavor of the grape was excellent, but that the berries were too small, evidently arising from the young and feeble state of the vine, and from so small a plant having borne so many bunches. They recommend Mr. Thompson to exhibit the fruit again next year, after the plant has attained more vigor, and has been grown under more advantageous circumstances.

Two bunches of a new white grape, were sent by Mr. Constantine, gardener to C. Mills, Esq., Hillingdon Court, with the following communication:—“A cutting of this vine was given to me in 1857, by Mrs. Mills, under the name of Chavourish. It had been sent from Bithynia, Asa Minor—and was said to be the best grape the Sultan had at his table. It is a strong grower, and very free bearer, bearing well under pot culture. It requires about a fortnight longer than the Black Hamburg to ripen it.” The large bunch exhibited was nine inches and a half long, tapering, very well set, and with one large shoulder. The berries are large, long oval; the skin is of a fine light amber color, thin, and adhering close

to the flesh, which is rather firm, juicy, rich, and highly flavored. The bunch is very showy, and will prove a valuable addition to our collections of large-bunched white grapes. It was unanimously awarded a first-class certificate.

BURCKHARDT'S PRINCE GRAPE.—Of the varieties of grape which at Chiswick this season have proved themselves to be of good quality, and desirable for cultivation, is one received some years since by the Royal Horticultural Society, without name, from Mr. Burckhardt. The grape, from its having some resemblance to the Black Prince, was named Burckhardt's Prince, in one of the early reports of the Fruit Committee, in which it was highly spoken of. This year the variety has ripened for the first time under pot culture, and proves in every way excellent. The established vines in the large conservatory have produced large and handsome bunches, but in that situation, where they receive little artificial aid, the berries scarcely ripen; it therefore evidently requires something beyond a greenhouse temperature. The bunches are long and tapering, well set, with large handsome berries, which are quite black. The flavor is excellent, resembling that of the Black Hamburgh combined with something of the briskness of the Black Prince. It may be considered as an acquisition.

THE MONTANGON OR CHANDELIER PLAN OF GROWING GRAPES. It will be remembered that in our last volume (p. 159) we gave some account of the mode of growing grape vines as standards, accompanied with an engraving, on what was called the Montangon plan; it was a new and novel system, and interested our own cultivators as well as those of Great Britain, who, having no other information about it, were at especial pains to procure specimens for inspection. At a late exhibition of the Royal Horticultural Society (Nov. 6) these were on exhibition, and we copy the following report from the Gardeners' Chronicle:—

These specimens were kindly procured for the inspection of English cultivators, through the agency of Messrs. Vilmorin, of Paris, and, though dead and dried up, they nevertheless fully answered the purpose for which they were exhibited. Of this kind of training some account, together with a wood-cut

illustration, is copied in the page above referred to. On reference to the page in question it will be seen that this mode of training the vine does not differ from that usually followed in this country in regard to gooseberry and currant bushes, and that vines will readily submit to such treatment gardeners will easily understand. The specimens exhibited had short, thick stems, open cup-like centres, and heads pruned hard in so as to occupy little room, and thus managed they are stated to bear abundantly. The plan may therefore be worth a trial in orchard houses, in which such standard vines, if they did well, would have a pretty appearance.

NEW PEARS.—M. de Jonghe, of Belgium, has published descriptions and engravings of the seedling pears raised by him, and named in his communication in our last volume, (p. 116,) viz.: Camille de Rohan, Charles Bassiner, De Bonneau, and Bezi Mai. We shall give a full account of them in a future number.

CONDITIONS OF PERFECTION IN THE STRAWBERRY.—M. de Jonghe, the raiser of *La Constante*, has published some valuable remarks upon this interesting subject, which we shall endeavor to find room for in another number.

OUR HARDY HERBACEOUS PLANTS.

BY THE EDITOR.

IN the rapid multiplication of varieties of our bedding plants, their easy cultivation, and their very showy character, the old and familiar garden perennials have been much neglected; not, probably, because they are wanting in beauty or attractiveness, but rather because fashion has otherwise decided public taste, and gradually they have been less sought after, till in many gardens, even of moderate extent, it would be difficult to count a dozen species; certainly a large and varied collection is rarely to be found, and the existence of many beautiful sorts is almost unknown.

It will be our object, in a series of articles, to make known a few of these; to bring them to the notice of our amateurs,

that they may be more speedily introduced to our gardens. From the earliest days of spring to the last week of autumn they enrich the border with their numerous flowers. Some are dwarf and spreading in growth, while others are tall and stately in appearance. All are hardy, require but little care, and with some few exceptions will flourish in any good garden soil.

Having, with considerable labor, made a collection of more than 200 varieties, and noted down the characters of each, we



1. *ENOThERA MACROCARPA.*

hope to interest lovers of flowers in their more general cultivation. Many hundred kinds are cultivated in English collections, but quite a number are not hardy in our own severe climate, while others are too delicate to render them popular. A few are so well known as to require no particu-

lar description, while others possess so many excellencies as to merit a particular notice. It is the latter more especially that we intend to bring before our readers, and incidentally others worthy of cultivation.

ÆNOTHERA MACROCARPA.

This very handsome species (FIG. 1) is probably the finest of this extensive group of primroses, and deserves a place in every collection of plants. It has a very pretty habit, with beautiful foliage, and large pale-yellow blossoms, three to four inches in diameter, which appear in profusion a greater part of the summer. It has a dwarf branching growth, and the flowers appear at the axils of the leaves, on long slender stems, eight or ten inches in length. The leaves are lanceolate, and are tinted with red.

This showy species was discovered by Nuttall, in his tour through the western country, growing on the borders of the Missouri river, and described by him under the name of *Æ. alata*, on account of its seed vessels. It was also figured in the Botanical Magazine under the name of *Missouriensis*. But it proved the same as the *macrocarpa* of Pursh, the name now adopted.

It is perfectly hardy and of easy culture, flourishing best in a somewhat peaty earth, but growing freely in any good garden soil. It is increased by cuttings or by division of the roots in spring or autumn.

Most of the perennial *Ænotheras* are North American plants, and are very beautiful acquisitions to any collection. The following are especially desirable:

ÆNOTHERA FRASERI (Fraser's Primrose):—Flowers deep yellow, large, appearing from July to October; leaves glaucous green, spotted. Height about 18 inches.

ÆNOTHERA GLAÛCA (Glaucous-leaved). Flowers, large yellow; blooming from June to October; leaves glaucous, large and broad. Height about 18 inches.

ÆNOTHERA FRUTICOSA (Shrubby Primrose). Flowers deep yellow, medium size; leaves prettily spotted with red; blooms from June to September. Height 18 inches to 2 feet.

CENOTHERA PROSTRATA (Dwarf Primrose):—Flowers yellow, medium size, appearing early in the spring and continuing for a long period. Height six inches, with a compact and neat habit, and admirably adapted for a bedding plant, blooming profusely early in the season and continuing in beauty till autumn.

All these are very fine border flowers, and are well worthy of a place in every choice collection. They are quite hardy, grow freely in any good soil, and are readily increased by division of the roots.

General Notices.

BEGONIAS.—It is to be feared that the present passion for plants with colored foliage will drive some of our old favorites out of cultivation—some of those plants which we have formerly valued highly, cultivated with care, and which have well repaid us for the trouble we bestowed upon them. Already has the sentence been passed upon some of the older Begonias; even their names have been banished from the pages of the newly published nursery catalogues; the plants themselves are everywhere doomed to unnecessary neglect, and are daily becoming more and more scarce. Before they are entirely gone let us at least give them a good character for the services they have rendered us; and if some horticulturist with more gratitude, and less of that tendency to bow to fashion, which Bloomfield says “rules us all,” may be induced to continue the growth of a few of the best kinds, he will be a benefactor to future generations, and I shall not have written in vain.

Let us see how matters stand with old Begonias. There is *B. octopetala*, the largest flowered species in all the family; it has already been lost, I fear. Should any gardener in the country still possess it he would do well to grow and exhibit a good plant of it at one of the meetings at South Kensington; it would produce quite a sensation. *B. nitida* was one of the most useful plants I ever cultivated for the sake of cut flowers during winter; one plant of it I recollect was never out of bloom for more than two years, and it might have continued longer for anything I know, for it was grown in a nursery and was sold in full flower at the end of that time. *B. fuchsioides* furnishes us with one of the most gracefully habited stove plants we have, and yet one seldom sees it well grown. It would make a much better exhibition plant than many of those which find a place among stove and greenhouse specimens at a late show. It would evince the skill of the

cultivator too, much better than a *Vinca* or an *Allamanda*. *B. Evansiana* (or as it is often called *B. discolor*) is used on the continent as an edging for beds of *Canna*, and with fine effect; why should it in this country be banished from the gardens of the wealthy, and find a home only in the cottager's window? It is a herbaceous kind, and the roots should be stored in some dry place during winter; it is so hardy that it certainly deserves a trial in those gardens where the purple *Orache* has proved a failure, and where the *Perilla* is thought too sombre to be used extensively. For the autumn decoration of the conservatory there are few plants which can vie with *B. diversifolia* (called *B. Martiana* in some gardens); the rich crimson flowers of this plant are very fine when the plants are well grown. It should be treated as a biennial, and grown in a hot-bed; but the tubers—for it is a herbaceous species—may be kept longer than two years if properly attended to in the winter. The roots should not be kept dry too long, or they will rot away like those of old *gloxinias*. One great peculiarity about this plant is the great length of time the seed will lay in the ground without germinating; although so very minute, and there are few seeds which are so small, they will often remain dormant for a year. A few seeds will start within a week or two after they are sown, and occasional stragglers will follow them from time to time, but if the gardener has sufficient patience he will find that the main crop will come up about a twelve-month after the seed was sown. This is so very different to what takes place among the generality of *begonias* that I should not have believed it possible had I not seen it occur more than once under my own hands, and fortunately I had noted the date of sowing upon the labels. The pretty habit, the neat, silky-looking foliage, crimson on the under side, and the freely-blooming properties of *B. Fischeri*, are qualities which I should hope would save this kind from extinction. *B. cinnabarina* is getting scarce, too, but it will not, I trust, be entirely lost, for it is a good and useful species. The delicious fragrance of the pure white flowers of *B. odorata* should make it worth preserving; and so should the pretty habit of the small and neat growing kinds—*B. Dregii*, *B. natalensis*, and *B. microphylla*.

All these, and others that I could name, are well deserving of cultivation; I could, if space permitted, easily lengthen the list by referring to *B. sanguinea*, remarkable for the crimson color of the under surface of its large and fleshy leaves, to *B. urophylla* and *B. manicata*, which produce such a profusion of flowers in early spring, and to other species which in their way are quite as valuable; but I trust that the good taste of my fellow gardeners will not allow them to sacrifice such useful plants to make room for the more showy hybrids. If we must have plants remarkable for the coloring of their foliage, there are still a few of the older kinds which have never been surpassed, if, indeed, they have been equalled. There is, for example, the rich crimson velvety leaves of *B. splendida*; this is a somewhat difficult plant to manage well, but when in a young and vigorously-growing state, there is nothing to rival it. The delicate manner in which the zones of color are shaded off into each other on the leaves of *B. Griffithii* (formerly called *B. picta*) is quite unique.

All the new hybrids partake of the characters of the *Xanthina* group of the genus; indeed, I think they may all be traced to some half a dozen species, and in almost every instance one of the parents has been a variety of *Xanthina*. Those kinds in which *B. splendida*, or the dwarf-growing *B. Thwaitesii*, has been one of the parents, are easily distinguishable from the others. But there is too much monotony among the hybrids, so many of them have been raised, and they are so difficult to distinguish from each other on account of their very minute differences, that many purchasers are already becoming disgusted with them. Our nurserymen should look to this and ascertain whether entirely new strains may not be brought out. Would the colored species hybridize with the strong growing upright kinds of the longipes or zebrina groups? Or, still better, would these breed with the small-leaved kinds, of which *B. natalensis* may be taken as the type? Before laying down my pen I may just observe that the curious peculiarity in the flowers of *B. frigida*, noticed in these pages about a year ago, is inherited by the young seedlings raised from the original plant. The same proportion of the flowers is still hermaphrodite, and the female organs superior. I have repeatedly tried to raise seed from these anomalous flowers fertilized by their own pollen, to see if the plant could be induced to make some further progress in this direction, but always without success. The seed from which the young plants were raised was produced by the normal flowers of this begonia.—(*Gard. Chron.*)

GLASS HOUSES FOR FRUITS.—I am sure that all gardeners must bear testimony to the great stimulus which "T. R." has given this particular branch of horticulture, and to the indomitable perseverance with which he has continued to fight for a number of years for his "orchard houses," and for his peaches and nectarines "in pots." "A look into their roots," he says, "is like a look into the book of Nature, most valuable to a reflective mind." I accept the cultivation of fruit trees in pots exactly in this sense. But as a matter of £ s. d. and of supply, I must leave my potted pets to keep company with my geraniums and orange trees, where as objects of beauty they shall have my attention still. That fruits of all kinds can be grown in pots there can be no doubt; but where a constant and substantial supply is required for table or for market, of the finest quality and in the greatest quantity, then there is no question that you must decidedly plant out. In 1853 I designed and built a peach house for the late J. H. Vivian, Esq., M. P., Singleton, novel in its structure, yet light and simple in all its parts. Although perhaps it ill becomes any one to introduce new ideas at the expense of any gentleman, yet when those ideas are based upon sound principles of theory, aided by years of experience, I think it becomes every intelligent gardener to step out of the beaten track and strike out a path for himself. I, however, grant that this ought to be the exception, not the rule; but the gardener, always so proud of the word "practical," should bring theory to his aid. A look into "*Lindley's Theory of Horticulture*," is like a look into the book of Nature, difficult to understand. I contend, nevertheless, that every gardener should apply himself to understand it, whether

he may be a qualified "practical," or not. I need not, I presume, enter further on this point. See, ye gardeners, what Lindley's Theory of Horticulture does say on any subject, but especially on that of light, heat, and air. Thus much I write in my own defence as a justification for a deviation from the usual style of peach-house building. Impressed with the importance of light, heat, and air to vegetation of every kind, but if possible in a tenfold degree to all tropical fruits grown in our sunless climate, I object to back walls, or indeed walls anywhere. I desire to see nothing but glass, giving light from every point, and with this conviction I built my new structure, which is 80 feet long by 17½ wide, divided in the centre; it is half-span, which I prefer because you get the direct rays of the sun to every part; it is glazed within six inches of the ground all round, back and front; it has 5 feet wide upright lights hung on pivots, all moveable, for the admittance of air; the top lights are also all moveable. The trees are planted out inside, and are trained on trellises. Single trees with clean upright stems are attached to each rafter and trained up, eight inches from the glass, similar to vines; these trees are planted inside, but their roots occupy the outside border; the whole is well heated by hot-water pipes. I do not hesitate to state that this little house and its produce is unsurpassed by anything of the kind in the kingdom; it produces immense quantities of fruit of the highest quality, the wonder and admiration of everybody, and it reflects the highest credit on Mr. Westicott the gardener, for the way in which he manages it; but like most of us, as I pointed out, he is inclined to keep his wood too thick for the proper development of the trees. Somehow in most cases gardeners have not the heart or nerve enough to thin sufficiently, whether it be wood or fruit. The same may be said of grapes, and in nine cases out of ten too many are left. But to the subject: Peach trees, &c., and their cultivation. If my opinion is worth anything, I recommend glass houses of the lightest possible construction, and trees planted out for supply. In this way there will be no disappointment, and if you wish to grow in pots let it be understood that it is for the pleasure which such a fancy conveys, not for profit.—(*Gard. Chron.*)

LACHENALIAS.—There is a little group of greenhouse bulbous plants, which is worthy of far more extended cultivation than it receives, we mean that of the *Lachenalias*—plants which one now very seldom meets with in ordinary collections, though they are amongst the most pleasing of spring flowers and of very easy management.

In general terms they consist of two or three lance-shaped leaves of greater or lesser breadth, either green, or spotted like those of some of our common orchids, to which in foliage they bear a considerable resemblance. From the centre of these leaves grows a simple upright scape or flower stem, reaching in the more ornamental species from six or eight inches to a foot or rather more in height, and decorated in its upper part by the numerous dependent cylindrical tube-like flowers forming a narrow pyramidal inflorescence. One of the commonest, and certainly a very lively-looking little plant of small stature, is the species called *L. luteola*, in which the

leaves are spotted, and the flowers, which are yellow slightly tipped with green, are abundant on the scape. A five-inch pot planted with five or six of its bulbs, each of which yields a flower-spike, has a very pretty effect. Not very dissimilar to this is the species called *L. tricolor*, but it differs in having a narrow ring of deep red around the edge of the cylindrical flowers. *L. aurea* is another beautiful kind, with the flowers of a rich orange color. Of rather more vigorous growth is *L. pendula*, in which the flowers are of a deepish red, and tipped with dark green. There are many other kinds found at the Cape of Good Hope, which is the home of the genus, and a goodly number have been introduced to our gardens, but for the most part they have been suffered to pass away to make room for novelties of less merit. No doubt they are, many of them, procurable without much difficulty, and the collection of the Royal Horticultural Society may perhaps do something towards reintroducing them. Those we have named may be met with here and there in cultivation now, and might readily be increased if they came into favor.

The ordinary treatment of hardy greenhouse bulbs is all that these pretty little plants require. They bloom in spring, after which they should be suffered to mature and ripen their leaves, and should then be allowed a dry rest. About August they should be repotted, in light well-drained earth, planting about three of the stronger bulbs of the larger growing sorts, or half a dozen of those of the smaller sorts, in a five-inch pot; or a single bulb of the larger ones, and about three of the smaller ones, in a three-inch pot, which size is sometimes more convenient for arranging in *jardinières* and in-door flower stands. We have advantageously used sandy and not very fibrous peat soil. They may be placed in a cool frame after potting, and treated as newly-potted bulbs usually are, moderate supplies only of water being given until they begin to grow up. In autumn they can be removed to a greenhouse shelf, where they are best placed near the glass. Here they continue to grow through the winter months, and come into bloom during those of early spring, the spikes of brightly-colored pendent tube-like perianths imparting a pleasing variety to the decorative materials obtainable at that season of the year. Along with the gay many-colored hyacinth, the narcissus, the tulip, the crocus, and the little azurean scillas, the species of *lachenalia* are quite worthy to hold a place. We hope to see them yet become as fashionable as they are interesting and beautiful.—(*Gard. Chron.*)

Gossip of the Month.

BONAPARTEA JUNCEA.—This curious and handsome plant has recently flowered in the collection of Messrs. Ellwanger & Barry, of Rochester, N. Y. The specimen was originally obtained of Messrs. Prince, of Flushing, N. Y., and has been in the collection of Messrs. E. & B.

since the foundation of their nurseries at Rochester, 25 years ago. It has apparently remained in the same condition, in a moderate-sized pot, till about the 10th of September last, when, unexpectedly, it began to throw up its flower stem, which grew so fast that it reached the height of 13 feet in two months, the flowers appearing in November, towards the base of the stem, and continuing in succession along nearly the whole length.

This is, we think, the second time the *Bonapartea* has flowered in this country. A specimen was exhibited before the Massachusetts Horticultural Society in 1845 or '46, which measured only little more than ten feet high. It is, however, a very common and interesting plant in European collections, where it has flowered so frequently that thousands of plants have been raised from seeds. A correct drawing of the plant in flower may be found in *Loudon's Magazine*, (vol. ii. p. 96,) and in his *Arboretum Britannicum*, (vol. iv. p. 2529). A specimen which flowered at Knight's Exotic Nurseries, London, was 14 feet high, and produced 846 flowers; it was 12 to 15 years old. Another specimen, which flowered in Brussels in 1857, was 30 feet high, and had 1200 to 1500 flowers; and the same plant flowered a few years previously. M. Soulange Bodin raised 1000 plants from the seeds of one plant which flowered in his collection.

The plant has a thick, round, wiry, rush-like foliage, drooping over the sides of the pot, very ornamental as a conservatory plant, or for summer decoration of the lawn.

The flower stem when it appears makes a growth of four to five inches a day. The flowers are lily-shaped, about two inches long, green without and a greenish yellow within, of no great individual beauty, but from their great number and the stateliness of the whole spike, highly imposing and attractive. It is easily cultivated in any ordinary greenhouse.

Though the plant will probably be out of bloom by the time this is seen by our readers, should any of them visit Rochester they will probably see what is nearly as interesting, the plant with its tall flower stem, and perhaps loaded with seeds.

HOVEY'S IMPERIAL LETTUCE.—Sir, seeing in the November number of 1861 of the *Magazine of Horticulture* some remarks on the Algerine lettuce, I send you a small box of the Hovey's Imperial Cape Lettuce, which has been growing in a cold frame, and which is very much exposed in an open field, on the north side of a stone wall; and we have succeeded in having lettuce for four years. This is the first winter I have tried the Hovey's Imperial Cape Lettuce, which I find stands the frost remarkably well, as you will see from the specimens, which are very fine for this time of year; you will also find it exceedingly tender, and, if you are a lover of lettuce, will pronounce it superior.—Yours, with respect, J. B. MCGEE, *gardener to R. S. Rogers, S. Danvers, Dec. 1861.*

We are obliged to Mr. McGee for an opportunity to try a specimen of our lettuce, which we know to be excellent, but which we never had the pleasure of eating so good at this late season. The experience of Mr. McGee proves it to be a valuable and hardy variety.

Massachusetts Horticultural Society.

Saturday, Nov. 2, 1861.—An adjourned meeting of the Society was held to-day—the President in the chair.

The following members were elected: Mrs. T. W. Ward, Canton; J. J. Fontarie, E. H. Eldridge, and J. W. Brooks, Boston; Jos. Gilmore, Jr., Newton Corner.

Col. Wilder, one of the executors of the will of the late B. V. French, reported that he had given to the Society \$500, the interest of which sum should be appropriated to the advancement of Horticulture; and the President, Messrs. Wilder and Stickney were chosen a Committee to report in what manner the same should be invested, and the objects to which it should be devoted.

Adjourned four weeks, to December 7.

Dec. 7.—An adjourned meeting of the Society was held to-day—the President in the chair.

The Executive Committee reported the following appropriations for the various Committees the ensuing year:—

Committee on Gardens,	. . . . .	300 00
“ “ Fruits,	. . . . .	1000 00
“ “ Flowers,	. . . . .	1000 00
“ “ Vegetables,	. . . . .	400 00
“ “ Library,	. . . . .	500 00—\$3200 00

The President, from the Executive Committee, reported that the friends of the late Mrs. Fessenden had the permission of the Society to inter her remains with those of her husband in Mt. Auburn.

On motion of F. Parkman, a Committee was chosen to consider the propriety of awarding certificates of merit to exhibitions of flowers, fruits and vegetables, and Messrs. Parkman, Hovey and Hyde were appointed the Committee.

On motion of W. C. Strong, a Committee was appointed to consider the propriety of changing the days of exhibition from Saturday to Wednesday. Messrs. Strong, Rand and Hyde were appointed the Committee.

Col. Wilder, from the Committee appointed in regard to the donation of the late B. V. French, made a report, stating that the \$500 had been duly invested, and recommending that it should be called the French fund, and the interest thereon be annually awarded in prizes as follows:—

For the best 20 varieties of apples,	. . . . .	\$20 00
For the next best 20 varieties of apples,	. . . . .	10 00

The premiums to be increased if at any future time the income from the fund should exceed the present amount. The report was accepted.

The Committee on Flowers submitted their report, which was accepted.

John Ruggles, Thomas Dana, Cambridge, and E. W. Wood, Needham, were elected members.

Adjourned two weeks, to Dec. 21.

Dec. 21.—An adjourned meeting of the Society was held to-day—the President in the chair.

Mr. Cabot, Chairman of the Committee on Fruits, submitted his report, which was read and accepted.

The reports of the Committees on Vegetables and the Library were read and accepted.

Mr. Strong, from the Committee for that object, reported that a majority of the Committee advised a change of the day of exhibition from Saturday to Wednesday, and, on motion of C. M. Hovey, it was laid on the table until the annual stated meeting in January.

The Committee on Gardens submitted their report, which was accepted.

Messrs. Austin, Stickney and Wilder were chosen a Committee to settle with Mount Auburn.

Messrs. C. M. Hovey, Cabot and Austin were appointed a Committee to nominate a Committee of Arrangements for 1862.

The Committee for Establishing Premiums submitted their report, which was referred to the Executive Committee for approval.

Meeting dissolved.

Horticultural Operations

FOR JANUARY.

FRUIT DEPARTMENT.

The month of December was mild and generally pleasant, with but little severe frost till the close; altogether a favorable month for forcing, and the completion of out-door work for the winter.

GRAPE VINES in the earliest houses will now be in flower, or have just set their fruit, and the heat may be increased from six to ten degrees, as the higher sun will now materially aid in keeping up a good temperature. Stop the shoots one or two eyes beyond the bunch, and give air every fine day. Commence thinning early. See that the outside borders are kept well covered with good warm stable manure, to keep out all frost. Vines in pots may now be brought in for a succession, and those already in fruit should be well supplied with manure water. Vines in later houses will soon begin to swell their buds, and should have the usual care given at this early stage; airing every fine day, and syringing till all the eyes are broken. Greenhouse grape vines should be pruned immediately, cleaned, and washed.

STRAWBERRIES in pots should be placed on a warm shelf, near the glass. Water sparingly for a month.

ORCHARD HOUSES should be well protected with mats or hay or straw in zero weather.

PEACH TREES, in pots, may now be brought into the grapery, for very early fruit.

FLOWER DEPARTMENT.

The month of January is the time to commence preparations for the year; a little forethought and calculation of the wants of the season will save valuable time. Commence very soon with the propagation of such plants as are wanted, and prepare for others next month. Some kinds of seeds should be sown; and various spring and summer bulbs potted. Look over the houses often, and keep everything in good order.

AZALEAS. Plants wanted for early bloom should now be put into a warm part of the house, and be frequently syringed and more liberally watered. They will soon begin to flower. Later blooming plants should be kept as cool as possible, and rather dry. Tie specimen plants into shape, and look over and keep the young stock in good order.

CAMELLIAS will be in full bloom. Water rather more freely, avoiding an excess. Keep rather cool, unless desirable to have early blooms; a temperature of 45° to 55° is ample.

PELARGONIUMS, with the advancing season, will begin to make good progress; slightly increase the temperature; pick off all dead leaves; turn the plants round often, and tie into shape all specimens, topping any rank growths. Repot later flowering stock.

BEGONIAS should soon be divided and repotted, and placed in the warmest part of the house.

GLOXINIAS AND ACHIMENES may be potted the last of this month; use a very light sandy soil.

HEATHS now coming into bloom should be more liberally watered.

SOW SEEDS of various annuals, for early flowering, such as pansies, stocks, &c., &c.

STOVE PLANTS should be cleaned, pruned, and repotted, ready for a vigorous growth.

ROSES should be liberally watered, using liquid manure.

CINERARIAS should be repotted, if not already done. Keep in a rather cool place, near the glass. Water carefully, and fumigate for the green fly.

CALADIUMS may be carefully divided and repotted, placing them in the very warmest part of the house.

FUCHSIAS should be encouraged by a shift into larger pots as soon as they require it.

ORANGE TREES, beginning to grow, should have little manure water occasionally.

ACACIAS, and other large growing plants, now coming into bloom should be freely supplied with moisture.

JAPAN LILIES should now have more liberal waterings.

CYCLAMENS should be kept cool and rather dry; a good shelf near the glass, away from strong fire heat, is the best place.

PROPAGATE a stock of everything needed for spring planting.

REPOT all miscellaneous plants that require it. Stake, tie up, and keep everything in order.

ORCHARDS.

SURPRISING as it may appear, the planting, management and care of orchards has received less attention than any other branch of fruit culture. With the exception of some capital articles in our volume for 1858, (Vol. XXIV.) by Mr. Wetherell, we have had little to say in reference to them in the Magazine, and as far as our recollection serves us, our cotemporary journals have even been more remiss than ourselves. When, however, we reflect upon the magnitude and extent of the orchards—and by this we refer to the apple—throughout the country, and the importance and value of the crop, far greater than that of any other fruit, and we are not certain but what we might say than all other fruits, it is apparent that a great interest has been overlooked or neglected.

According to the census of 1850, that of 1860 not being yet published, the aggregate of the orchard products of Massachusetts was more than \$500,000, while that of New York exceeded \$2,000,000. That a larger part of this is the income of the apple orchards we may infer, when, during the last rather unfavorable year (1861), nearly 150,000 barrels of apples were purchased in Western New York, at a cost of \$450,000, including transportation, by two extensive fruit dealers in Boston, and forwarded here. The orchard crops of Maine were valued at \$350,000, and it is well known that other fruits constitute but a very small part of the large aggregate of that State. Undoubtedly all these aggregates were more than doubled by the census of 1860. The pear crop and the grape crop are quite insignificant compared with that of the apple, yet, while these have engaged so much attention, the apple has been comparatively neglected.

From the very earliest period of orchard culture in this country to the present time, the subject has attracted but little attention in comparison with its importance. Even Coxe, who published his valuable experience in 1819, states in the introductory remarks to his volume that “he was com-

pelled to apply for instructions to European writers," and that his work was undertaken with a view to "aid the active and enterprising spirit of the American cultivators on subjects but little understood, and, as far as my information extends, but imperfectly discussed in any work professedly American;" and although our pioneer horticulturists, among whom were John Lowell, General Dearborn, and others, devoted their time and their pens to the dissemination of information through that valuable journal the *Agricultural Repository*, it still had few enthusiastic supporters compared with other branches of fruit growing.

No sooner, however, had the interest began to increase through the labors of the individuals just mentioned, than a fatal blow was given to its progress by the wholesale denunciation of cider as a healthy beverage. The temperance question, judicious as was its inception, was carried to such an extent, that orchards were no longer to be a source of profit to the planter. The then limited means of transportation compared with the present period, precluded the possibility of sending much of the apple crop to a good market, and that which had heretofore been manufactured into cider, the greater portion, in some localities, had become valueless; orchards were neglected, indeed the trees were sacrificed, and the result is now before us in the numerous old and decrepit orchards and but few young and vigorous trees to take their place.

Such at least to us, in a cursory view, appears the condition of orchard culture today. New England, than which there is no finer apple-growing region in America, does not produce apples enough for home consumption. Every year immense quantities are brought from New York, and in unfavorable seasons the price reaches such an extravagant rate, that only the richer class can buy that which should come within the reach of the poorest citizen.

Throughout the great West, there is a deep interest in orchard planting. With a fertile soil, a quick growth, and a brisk demand, apple culture forms a prominent and profitable source of income to the intelligent cultivators. Thousands, we should perhaps say millions, of trees are annually planted, and the older orchards yield good crops. Illinois returns in

1850 an aggregate of more than \$400,000 in orchard products, and Ohio about \$700,000, and this notwithstanding some local causes which materially abridge the product. In the exposed and almost treeless plains of the West, our severe winters often seriously damage the trees; and many young orchards have been partially destroyed; but these casualties do not diminish the zeal of the planters, and at the present moment there are numerous young orchards which, ere many years, must add greatly to the already large and valuable crop. The soil is good, the climate favorable, and with careful planting and judicious treatment, western orchards must become a source of large income.

We wish we could record the same zeal among our New England cultivators. That there are many thriving old orchards and a goodly number of more recent formation, we are ready to admit, but neither are in any comparison to the intelligence, the skill of our people, or the favorable climate, and the demand for their products. In the bearing years of the Baldwin, our markets are well supplied with the very best fruit; but when these fail, the stock runs short, the price goes up, and but for the Western New York orchards, good apples would reach a price which few could afford to pay. Indeed it is to this source that we now look for our annual stock with the same certainty that we look to the great West for our wheat and corn. This should not be. For while our soil and climate are so well adapted to the former, the latter yield abundant and profitable harvests only in the more fertile and easily tilled prairies of the West.

It might be well to inquire if such is the condition of orcharding in our own State, whether our agricultural societies are doing all they ought by the way of encouragement to apple culture? Should not liberal premiums be offered by every society in the State, not simply for the best exhibition of a few apples, but for larger or smaller plantations of trees, from *half an acre to ten*, and from two to ten years old; and should not our horticultural societies aid in so laudable an effort? They have done much in this way by the offer of handsome premiums for the finest specimens of the fruit, and perhaps that is as far as they should go, taking cognizance

only of tree culture as an art and not as a source of profit. In this connection it may be well to state, what is not yet at least generally known, that the late Hon. B. V. French bequeathed to the Massachusetts Horticultural Society the liberal sum of \$500, the income of which is to be forever devoted to premiums for the best annual display of twenty varieties of apples, and as this is in addition to the numerous premiums offered by the Society for the same fruit, it will at least have a tendency to direct attention to the subject and give renewed hope that orchards will receive more attention than heretofore. We should add what we have omitted in our opening remarks, that one of the earliest articles in our Magazine, was the "Detail of a method of Planting an Orchard," commenced in 1831, by Mr. French, who, from that period to his death, was a decided advocate of apple culture, collecting together all the best varieties, and his last act was to awaken in others the same zealous purpose. Whatever can be done to increase the number and extent of our New England orchards should meet the ready co-operation of every agricultural association. We hear of associations for the culture of the grape for the manufacture of wine, but laudable as all such efforts are, the apple in our climate must still be **FIRST** in importance of all fruits. An old and able physician, (Dr. Kennicott,) as well as a successful cultivator, remarks that the "potato, as human food, makes less brain and nerve and even muscle, though perhaps more fat, than the apple," while the "most wholesome beverage, and one of the pleasantest that carping water-drinkers had ever condemned," may be made from the same fruit. Forever may the idea be banished, that cider, because its use has been abused, should cease to be one of the important products of an enlightened agriculture.

To attempt in this brief article to give our own experience in orchard culture is not our purpose; our object is rather to draw attention to the subject; but as not inappropriate, though not wholly applicable to our climate and locality, we embrace the opportunity to notice a brief essay on orchards, by our old friend and correspondent, Dr. Kennicott, of the Grove, Illinois, being a premium essay written for the State Agricul-

tural Society of that State, in 1860. Like all that the Doctor does it is thorough, and covers the whole ground. But in our light and thin soils and more favored expositions what should be done on the prairies may be left undone here. Leaving to our intelligent readers to make their application to his advice, we copy the more valuable portions of his essay:—

COST OF ORCHARDS.

The cost of culture, and gathering the crop, will seldom exceed that of corn and potatoes—the smaller, and more largely-paying fruits excepted. And, averaged against our ordinary field crops, fruit WILL PAY, at least double profits, wherever the markets are handy, and good. And failures are not more frequent, where SOIL and SORTS are right, than with the wheat crop, in Illinois. I state this from actual observation, in the last fifteen or twenty years—but excepting the first, or sod crop, of wheat, from my estimate. The old bugbear, of overproduction, is all nonsense. I have hauled many a load of wheat to Chicago, and sold it, for, from 50 to 75 cents per bushel; and half of you have often realized less. But who, among you, has realized less, from a crop of good merchantable fruit—improved fruit—the best sort for your market?—not a lot of “seedlings,” which are often worse than “stump-tail” wheat, in any well supplied market. Fruit sells much better now, than it did twenty years ago, all through the west, and four times as well, east, as it did forty or fifty years ago; and every thinking and experienced fruit dealer, of twenty years’ standing—and there are some such, who have got rich in the business—will join me in the assertion, that the demand for fruit has been increasing faster than the supply; all they complain of is, that too many dealers are going into it, and that, even in Chicago, a monopoly of the trade is no longer practicable. It is true, that, with perishable sorts, a market may be glutted for a few days, but not often, and never for long.

SOIL AND DRAINAGE.

The first great principle, in the preparation of soil, for fruit growing, is THOROUGH DRAINAGE—UNDERDRAINAGE. The second;

depth, strength or specific fertility—and capacity for holding just moisture enough, and NO MORE! All these latter conditions are oftenest found in a good WHEAT SOIL. Land that will produce half a dozen good crops of winter wheat, with suitable rotation, is a pretty sure orchard soil, if reasonably drained. Land naturally well underdrained, is that with a subsoil of sand, gravel, or seamy and shelving rock; and is *not*, always—though often—the best fruit soil.

Underdrainage may be made, with the “mole” draining machine, in plastic clay—where the descent is moderate—with loose stones, boards, or brush, where the declivity is greater—and with *tile*, everywhere—that drainage is practicable. I have tried all; and am satisfied that the last is best, as a general rule; and the first, least expensive, and, where feasible, tolerably satisfactory.

I intimated that CLIMATE—and, of course, adaptation, in regard to some particular varieties of fruit—might be modified, by thorough drainage. It is said, that from 10° to 15° of heat have been gained by it. I know, that from one, to three weeks of TIME, is gained by it; and there is no doubt as to the other fact, of temperature. And the gain—from snow and rain—and the saving in fertility, and in rendering inert elements available, is of immense consequence, besides. The amelioration, in local climate, by dense plantations of forest trees and hedges, is now pretty well understood; and I refer to it, only, as a settled principle. But enough, on this. You MUST DRAIN orchard ground, and it is best to underdrain it. If you cannot do it, then do the next best thing. By successive back-furrows, throw your ground into spaced ridges, with deep dead-furrows down the slopes, and open ditches for efficient outlets. An exceedingly wasteful and slovenly process, but one that may save your orchard, for all that. And if you will not plant forest trees and hedges, for protection to orchards, then plant your orchard trees thick, and they will protect each other. What is often considered “a good corn soil”—or our rich, black, prairie loam—over retentive clay—is utterly unfit, for most orchard fruits, in its natural condition, and position—the books to the contrary, notwithstanding. But underdrain this, and TRENCH-PLOUGH it

—deep enough to bring up plenty of clay, and perhaps lime—and alter its capacity for retaining moisture, in a dry time, and modify its dark COLOR, by admixture—and you may make of it, a fruit soil—almost equal to the natural wheat soil.

Cold water is the greatest enemy the ordinary orchardist has to contend with; an insufficiency of alumina, or clay, is often fatal; lime is no less necessary to most fruits; the phosphates, potash, soda, &c., are essential, and not always easily supplied; vegetable matter cannot be dispensed with; but is almost always sufficiently abundant, and can be added, at little cost, when needed. But, in nine of every ten cases, I will come back to cold water, as the cause of general failure—so far as soil is concerned—and point you to drainage, and the trench plough, for prevention and cure.

Always prepare orchard ground in autumn, except in loose sand, perhaps, whether you plant then or not. There is less time for it in spring; and frost is a great pulverizer of good clay. As a rule, your orchard soil should be well worked, to a depth of at least 12 inches—and better 18—if its character will admit of it. And, if the clayey sub-soil be stirred by the sub-soil plough six or eight inches deeper, so much the better.

SELECTION OF TREES.

Never plant seedlings, if you can get any good worked sort. Seedlings do not pay. Budded trees *are*, in my opinion, better than root-grafts—a few sorts, possibly, excepted.

Never buy trees of a pedler. You must, of necessity, get cheated, or cheat yourself, in either price or quality, in three out of every four cases. Not one, out of a hundred healthy trees, should fail to grow if well planted, And yet half that are planted do fail! Your pedler, and your half-bred tree-maker—and your own adherence to old whims, and persistence in the notion, that a tree is as tenacious of life as a purslain—one or all—are at the bottom of those losses.

Buy your trees of the regular EDUCATED NURSERYMAN near you, or order them from a distant one in whom you have confidence; and, in every case, order the *roots to be sent* with the trees; and sent *alive*! Have your trees WELL “PACKED,” and PAY WELL FOR IT, and you will *get them alive*.

HOW TO PLANT.

If you get nearly all the roots of a tree in good condition, you need remove very little if any top. If short of root, then shorten in or cut back the new growth, to compensate for loss of root; and do the same if the head of your tree needs forming—shaping. Remembering, always, that leaf-producing branches, or top, is as essential to growth as roots.

I will now suppose that your trees are nicely heeled in—and you should heel them in when you get them—even if to be planted in half an hour—and that your well-prepared ground has been measured and staked off, at proper distances apart, for the trees; the next work is to plant them *right!* and be in no hurry about the work.

But I am forgetting the distances. And this is really a question I would gladly ignore—my own ideas and practice being so much at variance with others, and especially eastern orchardists. There is a wide difference in the growth of varieties of the same species of fruit tree; and there should be a difference in the space given them. Take the apple for example: a yellow Bellflower will soon occupy, and really needs, double the space ever required by a Hawthornden, Lady Apple, or Duchess of Oldenburg; and, to a greater or less extent, this holds good all through the list. Yet, eastern men tell you to plant apple trees forty to fifty feet apart! and some few western men follow suit; while others say sixteen to thirty-two feet only. Both are, in part, right enough. At the east, the large spaces are needed for other crops; and dense plantations are not DEMANDED, as here, by the climate and meteorology, and especially high winds—sweeping over treeless plains. I am, therefore, one of those advocating close planting IN THE PRAIRIES. I would rather plant close, and cut away half when too thick, than not have the PROTECTION of *close* plantations for the first twenty years.

For apples that attain the largest size, thirty-two feet is none too great a space after twenty or twenty-five years; for those of small growth it is more than will ever be needed. But in a small orchard, of mixed sorts—unless you are determined to devote your orchard to fruit alone—it is well enough to give all your trees all the space they will occupy when

thirty or forty years old. Or else plant with the intention of cutting out half when crowded. For it is inconvenient to plant and cultivate at different distances in the same plat. Perhaps we may say, the extremes for apple trees should be sixteen to twenty feet when in squares, and half intended to be sacrificed—and thirty to forty feet where *all* are to remain—and all, or nearly all, are of large-growing sorts. In quincunx, or diagonal plantations, a less space will do; for you will have broad diagonal spaces for the wagon and plough, and the trees a better chance to expand, in proportion to measurement by acre.

CULTIVATION.

Fruit trees need as much cultivation as corn and potatoes, and should have it—not for one year or five, but forever—or as long as they pay for it in fruit. But the cultivation should not be continued too late in summer, lest a late and consequently immature wood-growth should ensue. This caution is especially called for in relation to all tender-wooded sorts, like the peach and pear. You can raise any kind of hoed crop you please among fruit trees. Beans, potatoes, vines, roots, &c., best; and corn good when not shading the young trees too much.

NEVER “SEED DOWN” a young orchard. Never let one of the forage “grasses” get a foothold in it. It is next to impossible to keep down “blue grass” and “June grass” when once established in an old orchard. Red clover is sometimes admissible, to check a too luxuriant wood growth, in deep rich loam. “Small grains” NEVER. A crop of rye, barley, oats, or wheat, is worse than “fire blight” and caterpillars among fruit trees.

A shallow-running corn plough, “cultivator,” and four-tined fork, or pronged hoe, and common hoe, are the implements of cultivation. Keep the spade out of the orchard, and the large plough too, after the trees begin to bear.

MANURING ORCHARDS.

I have left this till the last, because it is the last thing to practice, except in rare instances; as driving sand, which

may be helped by clay, leached ashes, and cow manure, and barren clay—seldom found—which, after thorough drainage and exposure to winter frosts, by autumn ploughing, may be made good by early applications of coarse stable or horse manure, peaty earth, and like matters. Manuring, to sustain fruitfulness, is another thing, and is not much needed in most orchards west, till the trees have been years in bearing; and, as often given at planting, it is a great damage, and sometimes death, to fruit trees. When you manure bearing orchards, let it be in autumn; spread evenly, and plough under lightly in spring, but be careful to place it where the roots are—not close to the stem! and avoid breaking roots when you plough.

Special manures are often of great moment, especially broken or dissolved bones, leached ashes, air-slaked lime, &c. —analysis of soil, analogies, and experience, will teach you these special wants; and care and patient watching will insure a just reward for all your WELL-DIRECTED WORK.

HALF-HOURS WITH THE OLD ENGLISH GARDENERS.

BY AN AMATEUR.

WE think we can do nothing more acceptable to our readers than to give them a brief abstract of the earliest instructions for laying out grounds, which were published in England, and contained in a work by John Parkinson, apothecary. The part with which we are at present concerned is entitled "The Ordering of the Garden of Pleasure;" and the instructions it contains are perhaps as useful as any that have been put forth at the present day. He speaks first of the situation of the garden, remarking that the several situations of men's dwellings are, for the most part, unavoidable; for most men cannot select a place, but must be content with such as falls to their lot: but for the advantage of those who can locate their dwellings according to their own choice, he delivers these instructions.

Some prefer a situation near a river or lake, for the pleasantness of the water, and the ease of transporting their goods, as well as for the fertility of the soil, which is seldom poor near a river's side. Others extol the side or top of a hill, for the prospect's sake; again, some would select a plain for their dwelling, as they can more easily approach it on a level ground. The object of the writer is to show for each of these situations which is the fittest place to plant a garden in, and how to defend it from the wind and cold. First, for those who live near water, he supposes the north side of the water to be the best for the garden, that it may have the comfort of the south sun to lie upon it, and the dwelling-house to be above it, to defend the fruits and flowers from the cold winds and frosts. He judges also for the hill-side, that it should lie open to the south, with the house above it. He gives the same instructions for the plain or level ground.

But because every one cannot so appoint his dwelling as to put it always in the fittest place, he should endeavor to gain all such advantages, by helps of brick and stone walls to defend the garden, or by *the help of high-grown and well-spread trees planted on the north side thereof*, to keep it the warmer. And each of these three situations, having the buildings facing the garden, as before specified, beside the benefit of shelter it will have from them, the rooms in the house will have a beautiful prospect into it, and both sight and scent of whatsoever is excellent within it, which is one of the greatest pleasures a garden can yield its owner.

Having shown the best place where the garden should be located, he explains where it should not be; and signifies what is the worst place for it. Such may be said, if it be either on the west or on the east side of your house; or if it stand in moorish ground, or near any common "lay-stalls," or common sewer, or near any great brew-house or dye-house, or any other place where there is much smoke, especially of sea-coal, which of all others is the worst, as the city of London can give proof sufficient, since the use of sea-coal began. Likewise it is much the worse, if it be near unto any barns and stacks of hay, which will choke it with dust and seeds of weeds.

With regard to soil, no man will deny that the natural black mould is not only the fittest and richest, but it exceeds others in durability. Next to this he esteems a sandy loam, which is hardly inferior to it; as it is well adapted for all bulbous and tuberous-rooted plants, and for trees and shrubs. Other grounds, as chalk, sand, gravel, or clay, are all of them more barren than the former, and require, therefore, such helps as most befit them. For grounds that are over-dry, loose, and dusty, the manure of stall-fed cattle, well rotted, and turned in and mixed with the earth, is admirable to temper both the heat and dryness of them. On the other hand, the stable manure of horses is the best for cold soils.

Of all kinds of soils, stiff clay is the worst for a garden; for although you should dig out the whole compass of your garden, carry it away and bring other good mould in its stead, and fill up the place with it, yet the nature of the clay is so predominant, that in a short time it will eat out the heart of the good mould, and convert it to its own nature. Hence it puts you to the necessity of continual labor to improve and restore it. Next to stiff clay the worst is that which comes nearest to it, the signs of which are overmuch moisture in winter, and much cleaving and chapping in summer, when the heat of the year has consumed the moisture. But if the clay be not too stiff, but tempered and mixed with sand and other earths, the chapping or rifting may be prevented by the plentiful use of stable manure of horses. Some also recommend the casting of ponds and ditches to help to manure these stiff chapping grounds.

Other grounds that are inundated by springs that lie too near the upper surface of the earth, require that the beds should be laid up higher, and the alleys, as trenches and furrows, be laid lower, and filled with chalk and limestones, and other substances that will drain the moisture from the beds. For sandy soils, along with the manure of cattle, some recommend a white marl, and some a clay to be well spread upon them and ploughed in. For chalky ground, he recommends clay to help it. It is well to understand that the poorer your soil, in any respect, it needs the more care, labor, and cost to be bestowed upon it: for no artificial or forced

ground can endure a great while, but requires often to be renewed and refreshed.

In the next place the author speaks of the frame or form of the garden. He remarks, however, that to prescribe one form for every man to follow, were presumption and folly; for every man will please his own fancy; but he proceeds to show the several forms which have been preferred. Out of these let every man choose which he likes best, or which is most suitable to the ground he has set out for this purpose. He says, the orbicular or round form is held to possess the most absolute beauty; but few, he thinks, would choose such a proportion to be joined to their dwelling. The triangular or three-square is such a form also as is seldom chosen by those who can make any other choice. The four-square form is the most usually acceptable to all, and conforms best with the dwelling-house. If the garden be oblong, the proportion of walks, squares, and knots may soon be brought to the square form, and be so cast as that its beauty may be no less than that of the true square.

To lay it out, therefore, with walks, to cross the middle both ways, and surround it with hedges, with squares, knots, and trails, or any other work, may be left to every man's conceit. There may be within it walks, either open or close, either public or private, a maze or a wilderness, a rock or a mount, with a fountain in the midst of it, to convey water to every part of the garden, either in pipes under the ground, or brought by hand, and emptied into large cisterns placed in convenient spots, for occasional use.

Arbors, being both graceful and necessary, may be constructed in such convenient places as to serve both for shade and for rest after walking. But let every man observe this rule, that in forming his trails, knots, and other devices, he should cast them with convenient room for alleys and walks; for the fairer and larger your alleys and walks, the more grace your garden will have, the less harm the herbs and flowers will receive from those who pass by them, and the more easily will they be cleansed of weeds.

Of the many sorts of herbs and other things to be used as materials for borders and edgings, wherewith the knots and

beds in a garden are to be set, to show the form of them, to preserve their verdure, one of the most important and most anciently received is thrift. This is an everliving green herb, that grows thick and bushy, and may be trimmed with a garden shears, in some handsome shape; and in the summer it sends forth many short stalks of pleasant flowers. Yet it is objected to this plant, that a considerable part of it is apt to perish, both from the cold of winter and the drought of summer, so that it is deformed by many void places or gaps, that require every year to be filled up. Its thickness of growth becomes the shelter of snails, so that gilliflowers and some other rare plants are frequently spoiled by them.

Germander is another herb which was formerly much used for bordering, because it will grow thick, and may be kept in good form and proportion by cutting. The cuttings are also much used as a strewing herb for houses. But this plant is apt to die, and grow out of shape; the stalks become too large for convenience, and the roots are apt to spread themselves within the beds and spoil them. For this reason it requires to be dug up and reset as often as once in three or four years. Hyssop has also been used to set about a knot, and being sweet, will serve for strewings, like germander. But the tops of the hyssop are liable to perish, while the roots do mischief by spreading. Marjoram, savory, and thyme, all sweet herbs, are used likewise for edgings, but these will serve only for one year's use, and soon decay. Therefore, neither these, nor those first mentioned, does he recommend.

Lavender cotton, being finely slipped and set, is valued both for the beauty and form of the herb, and being ever-living and abiding green all the winter, may, by cutting, be kept in as good shape as any other herb. But this will finally grow stubbed and perish in some places, especially where the sun lies and dissolves upon it. He speaks at last of box; and chiefly above all other herbs commends it, as being low and small, and serving very well to set out any knot or border any beds. It is an evergreen, and being reasonably thickset it can be easily trimmed into any shape or fashion; and, as it grows very slowly, it is long before it rises so high or grows so bushy as to be inconvenient. This he commends and

holds to be the best and surest herb to abide fair and green in all the bitter storms of winter, and in all the heats and droughts of summer; and it recompenses the want of a good scent, with its fresh verdure, its even proportions and its duration. To prevent the roots of the box from extending into the borders, he recommends a broad pointed iron, like a slice or a chisel, to be thrust down and cut away the spreading roots, all along the inside of the beds.

The author concludes these instructions with some remarks on certain vulgar errors respecting plants and flowers. The first confutes the notion that flowers can be made double by planting them according to certain observations of the changes of the moon, and the constellations or conjunctions of planets. He denies that, if these circumstances have any such effect in the ordering of Providence, that the art of man has ever discovered the method whereby they will produce these effects. He denies also that single flowers have ever been made double by frequent transplantation or by using rich soil: but in regard to this last consideration, it may be remarked that he had not the full experience of modern florists.

Concerning colors and scents, the many rules and directions found in books, to cause flowers to grow yellow, red, green, or white, that were not so naturally; as also to cause them to be of the scent of cinnamon or musk or what not; when put to the trial will vanish away like smoke. They say, if you shall steep your seeds in the lees of red wine, you shall have the flowers of those plants to be of a purple color. If you would have lilies or gilliflowers to be of a scarlet red color, you must put vermilion or cinnabar between the rind and the small heads growing about the root. If you would have them blue, you must dissolve "Azur or Byse" between the rind and the heads; if yellow, orpiment; if green, verdigris, and thus of any other color. Others advise to open the head of the root, and pour into it any color dissolved; and whatever color you put in, just such or near it will be the color of the flower. Some again, advise to water the plants with liquors of such color as you would impart to the flower. To make roses yellow, you should graft a white rose upon a brown stalk, and the flower will be yellow. The

same is affirmed if a rose be grafted on a barberry bush, because both the wood and the flower of the barberry are yellow.

It is also affirmed, that by putting cloves, musk, cinnamon, benzoin, or any other sweet thing, bruised, with rose water, between the bark and body of trees, their fruit will smell and taste of the same that is put into them; and if they be put into the tops of the roots, or bound into the head of the root, they will cause a similar smell in the flowers. All these directions are set down confidently in certain books, as if they were matters of established certainty; yet he assures the reader that they are all mere idle tales and fancies; without foundation or the shadow of reason or truth. The remainder of the volume is devoted to the description of all known herbs, trees, and shrubs which in his time were cultivated in gardens.

SCIENTIFIC GARDENING.

BY ALFRED CHAMBERLAIN.

THOUGH the science of gardening is coeval with civilization, its greatest development is always to be found in places which nature seems to have marked out for desolation, rather than in those tropical regions where she has done so much that man is, as it were, only required to pluck the fruit suspended above his head.

We are thus reminded that labor alone can accomplish wonders and fix the admiration of mankind.

Three nations of antiquity claim priority of race, the Babylonians, the Assyrians, and the Egyptians. The Babylonians occupied a country so remarkably flat, that the extreme heat often forced them to retire for sleep to apartments excavated beneath the earth. Rain was almost unknown to them; but two rivers, swollen by the rains of higher regions, overflowed their banks every year, leaving vast ponds, which by means of artificial canals watered the country. Thus Babylon, dry by nature, became by art remarkably fertile. Semiramis turned the course of one of these rivers, and, in the space of

two hundred and sixty days, built a subterranean palace in its natural bed; having done this she allowed the river to flow back, and luxuriated in this cool retreat connected with the upper palace. But it was not to her, as has been supposed, but to the caprice of a Persian mistress of a Syrian king named Cyrus, that Babylon owed her hanging gardens. She, accustomed to behold meadows and fruit gardens ornamenting the sides of her native mountains, wished for something to remind her of home, and asked the all-powerful king to overcome the flat nature of the country by art. To please her he caused to be constructed a square garden, with sides covering four acres each, and ascending gradually—the avenues of approach being, at intervals, adorned with appropriate buildings, giving it the air of a theatre.

These platforms of approach rose supported upon arches which served to sustain its weight, mounting almost imperceptibly one above the other. The last, however, was fifty cubits high, sustaining the front of the gallery, which was exactly regular through its entire length.

It was placed upon a species of extremely solid pillars, the base of each of which was 484 square feet. As these pillars were only ten feet apart, they were connected by blocks of stone, sixteen feet long and four feet thick. These stones sustained a floor of reed-grass, which was united by vast quantities of bitumen; on this was a second floor of bricks of double thickness, fastened together. Over this again came a third floor of lead, thus preventing the moisture of the earth above from penetrating to the walls. So great a quantity of earth was then transported to the spot that it sufficed for the largest trees to take root, and the garden contained a great number of every species, of vast size and remarkably beautiful.

As the light of day passed freely between the pillars, several magnificent apartments were formed in the latter; a single one was hollow from top to bottom. In this were the pumps which went down to the river and supplied all the water. So well was this contrived, that no one unacquainted with the fact could tell whence the water was drawn.

For the above account, we are indebted to a French version of Diodorus of Sicily, by the Abbé Terrasson, for "Babylon, learned and wise, hath perished utterly, nor leaves her speech one word to aid the sigh that would lament her."

The same love of flowers which produced this monument of ingenuity still exists in man; and whether we erect palatial orchard-houses, such as Governor Sprague is now constructing, or cultivate our little garden plot, or even tend a box of shrubs on the window-sill or house-top, we are alike acknowledging the great truth that a love of gardening is deep rooted in our hearts.

As the green leaf which the dove brought to the Ark showed that the Deluge was giving way, so, in every city, the spot where we find a plant or a tree marks the boundary between the home of honest industry and the regions devoted to brutality and vice. Eugene Sue well understood this when he caused his heroine to cherish her faded rose-bush; and the author of Pichiola had the key to the human heart when he founded his story on the gradual development of a plant, from the stones of a prison, to cheer the eye of the captive and give him an interest in life.

Perhaps I may be pardoned for here remarking that it was the observation of this contest between the love of floriculture, instinctive to us all, and the absorbing progress of brick and mortar, which first induced me to study the practicability of suspending flowers in the air, by means of "hanging baskets," and substituting chemical nutriment for earth needed for other purposes. At first, I only aimed at bringing the luxury of fruits and flowers within the reach of all; but I have gradually come to believe that the substitution of nature, in this form, for bad imitations will raise the tone of theatrical representation, and make actors more pleased with those parts where formerly they had to eat a plaster peach or smell a pasteboard rose. If I have met with opposition, I have also had success.

We often hear people speak "of looking from nature up to nature's God"; but we realize the full force of the expression as we gaze on the first evidence of opening spring, or, after months of city life, luxuriate for the first time amidst rural scenery.

Whilst other professions have been thought worthy of all the development of American enterprise, gardening, which ministers at once to our moral and physical wants, has been sadly neglected; yet in our hearts we acknowledge that

"The rose which lives its little hour
Is prized beyond the sculptured flower."

It is the high province of horticultural associations to make gardening popular with all classes, and raise the social position of the gardener by directing his attention to botany as well as landscape gardening. Some account of the origin of these two branches may not be uninteresting. Passing over the description of the garden of Alcinous, which had its origin in the imagination of "the blind old man of Scio's rocky isle," we find that Aristotle first imbued his disciple, Theophrastus, with a desire to study the nature of Plants; and that Rome knew little of our science till the time of Dioscorides, who lived in the reign of Nero, and of Pliny the naturalist, who died in the latter part of the reign of Titus. Pliny has given very full accounts of his own gardens; but want of time, and your own acquaintance with the subject, induce me to pass on. In the days of the Emperor Hadrian, Rome kept up vast standing armies upon her frontiers. Into these, to guard against the heat of July and August, they introduced long colonnades and verdant cloisters, and hence arose the "Topiary art," so called from a Greek word meaning rope, since ropes were used to bend over the trees. This art, revived in Europe in the 17th century, was carried to such perfection, that Casaubon tells of a specimen near Paris, representing the Trojan war, men, horses, and all, being admirably represented by figures of living verdure. This art has now become well known through various treatises on arboriculture.

Our own expedition to Japan shows us the perfection to which that people had brought the process of dwarfing and enlarging shrubs at pleasure. Under the heading "Horticulture," we read: "In this department the Japanese were very skilful. They possessed the art in a wonderful degree, either of dwarfing or of unnaturally enlarging all natural productions. As an evidence of the first, may be seen, in the miniature gardens of the towns, perfectly mature trees of various

kinds, not more than three feet high, and with heads about three feet in diameter. These dwarfed trees are often placed in flower pots. Fischer says, that he saw in a box, four inches long, one and a half wide, and six in height, a bamboo, a fir, and a plum tree, all thriving, and the latter in full blossom."

The Japanese, in order to thus subjugate nature, must have studied deeply the science of botany, and I shall now attempt a slight sketch of the rise and progress of that science in Europe. During the middle ages Botany made little progress; but in the 15th century it revived, and Brunfels of Mentz, Jerome Tragus, and Leonard Fuchsius, wrote the results of their observations in Europe. In the 16th century, Lecluse, called Clusius, described with precision plants that he had noticed; so also did Conrad Gesner of Switzerland, Césalpin in Italy, the brothers Bauhin and Magriol in France, and Ray in England. In the 17th century, the microscope was discovered, and by its aid, Malpighi, so early as 1676, and Graw in 1682, discussed almost every question of vegetable structure. The 18th century produced Joseph Pelton, better known as Tournefort, from the name of his place. He first discovered the genders of plants, and classified them according to the presence or absence of the corolla. Next came Linnæus of Sweden, who perfected and simplified the system of Tournefort. But the most perfect classification upon natural principles is due to Antoine Laurent de Jussieu, who published his great work in 1789.

This attention to the science of botany, naturally led to the establishment of botanic gardens. The first of these was that of Pisa, in 1543. The first opened in France was that of Montpellier, in 1597. That of Paris was not erected till 1636. It now contains over 60,000 living plants. In imitation of this, every capital of Europe has now its botanic garden. Landscape gardening was introduced into France by Louis XIV., who employed Le Nôtre and La Quintinie, in laying out the gardens of the Tuileries and Versailles, about the same time that Sir Wm. Temple was describing Moor Park, and William III. was teaching Swift to cut asparagus.

Then, too, was the Chinese school introduced into England. Kent was the father of the English school of gardening;

Brown perfected it. But England is indebted to America for her choicest plants and trees. The London Times acknowledges this as follows: "The private exhibition of American plants attracted a brilliant assemblage to Ashburnham Palace, the abundance of Rhododendrons producing a brilliancy of effect that could scarcely be excelled." The Morning Post speaks of a collection at Woking, as being the most extensive in England, and adds: "Those who only know the Rhododendrons by the examples we see in our parks and public gardens or in private, can form but a faint idea of the gorgeous splendor which a collection of many hundreds of that beautiful evergreen in full blossom and arranged with due regard to form and hue is capable of displaying." How humiliating to the American traveller must it be to learn the names of these gems of his native land from strangers, and not to have a scientific knowledge of those trees which cause America to take a high place in the gardens and parks of Europe. I trust that some patriotic individual will yet establish a professorship in some of our Universities, devoted to the study of American plants, and that a botanic garden may arise, where foreign and native-born plants may meet the eyes of foreign and native-born citizens, and, typical of the union of the offspring of two hemispheres, minister equally to the glory of the American Union.

CORDON TRAINING OF FRUIT TREES,

ADAPTED TO THE ORCHARD HOUSE AND OPEN-AIR CULTURE.

BY REV. T. COLLINS BREHAUT.

SEASONS FOR PLANTING AND PRUNING.

THE season for planting is a busy, and it must be confessed, a somewhat harrassing period. It is "dig sine otio." The time which succeeds the first rest of the sap, that is, the early part of winter, is the most suitable for the work in hand. If neglected, then that period which immediately precedes the first movements of vegetation is the best.

As to young trees in the orchard house, any time during

winter will do for them. If they are ready to bear, of course, the less they are disturbed late in the season the better their chance of setting their crop will be. But then, these trees can be bought now ready potted, and thus a new house may be stocked at any time. If destined to continue in pots, when carefully packed, no injury is done to them, and if for plantation in the borders, they are equally ready, summer and winter, with ordinary care; and therefore a tree established one or two years in a pot is ready for any use.

For out-door planting, if not on too large a scale, trees thus potted are far the safest; their roots are more established, and are infinitely more full of fibres, and the indispensable spongioles are not cut off in transplanting. This is the rule in the case of more valuable and delicate trees: pears, plums, and apples are easily managed. By having a portion of your trees in pots, you may be ready for your house if not already built, and time will thus be gained. You may house them, or leave them out of doors near some sunny spot, protecting the surface of the pots from drenching rains, by a few slates. Some branches placed to windward, and a mat around them, will preserve any fruit tree from injury; or it may so happen that a friend has a spare corner in his own orchard house, or a slight shed can be run up. All these are simple means and obvious resources, if the season for planting should come on us before we are quite ready to undertake the whole at one single time.*

As to out-door planting on a larger scale, a mild day with a gentle sun-heat is the most favorable time. Never plant the trees *on a level with the surface soil*, but let them be raised up above it in their own little mound, some four inches above the surface. By the end of the first season the natural subsidence of the ground will bring them to their proper

* This advice is for the mild climate of Great Britain; in this country such protection is insufficient, as the November and later frosts would freeze the earth in the pots, and not only injure the roots,—which should never be allowed to freeze,—but the pots would be broken. If there is no place to house them safe from frost, the pots or tubs should be sunk six inches below the *surface* in a dry soil, and covered with a foot of leaves or strawy manure, and here they should not be left out later than the middle of December. The proper place is a cellar where the frost does not penetrate. —ED.

level. This is very important to bear in mind, but is very seldom attended to, although it is ruinous to the tree to neglect this precaution.*

The earth from the bottom of the pit, which should be ample and large, should be placed in one side of the hole, and that which came from the surface on the opposite side. Then when your tree is planted, the upper soil should be placed near the roots at the bottom, and the earth from the lowest part, mixed with some leaf-mould and sand, will serve well for the top. Place the tree on a gentle mould in the centre of the hole, lightly powder the earth over and between the central roots, but press down rather firmly the earth over the extremities of the roots, having first well spread them flatly in every direction. A stake to which the tree shall be firmly tied completes the operation, not, however, forgetting to have the name of the tree written on a label attached to it. Zinc, or wood painted, is best for labels. Avoid all stimulating manures in contact with the tender fibrous roots, adding only vegetable mould, and calcareous matter with it. No tree should be planted in damp situations; but if this be unavoidable, a drainage of four to six inches of stones, or oyster shells, will tend to remedy this.

There is some variety in the soils proper to the various kinds of fruit-trees. The plum, the cherry, and the apricot, require an argilo-calcareous soil. The situation should be *rather* more moist than dry, and they will do well where there is no *great depth* of soil. It is useful to remember this; because light soils, especially if at all sandy, are not adapted for peaches. These require a firm and rather unc-

* This is another item of advice which is not altogether applicable in our dry climate. A great deal has been written about planting trees too deep, and it is well that cultivators should understand that such an error should be avoided. But on the contrary it is not absolutely necessary to the success of the trees that they should be planted "on their own little mound above the surface," and that it is "ruinous" to neglect it. All good cultivators advise planting the quince *below* the surface, and of thousands of trees so managed we have not yet seen the first instance of failure. In regard to other trees, the rule should be, to plant level with the surface, so as to fairly cover the roots, unless in a swamp, and then "its own little mound" may be safest. Our hot sun, and long summer droughts, would soon exhaust all the moisture from these little mounds, and leave the tree to perish.—Ed.

tuous loam,—deep, but permeable,—and they must have abundance of calcareous matter.* In the case of wall trees, the borders should not be less than six feet broad, and should slope gently downwards, and be well drained. This is indispensable in the case of peaches. These borders should never be cropped. No early potatoes should ever be allowed to encroach on the ground devoted to wall trees. Fork lightly up these borders, removing the weeds, but unless the soil be very heavy do not dig them up. Mulch the borders in July, but *never before* that month; because the ground is not warmed enough till that period to shade it from the sun by mulching: but after that time this operation is *invaluable*, as it checks evaporation and saves watering. In the late autumn lightly fork in this mulching, which will then be quite friable. You may renew it in the summer, as occasion requires; indeed, the proper time to nourish the tree is during growing and bearing season, and not when it should be at rest,—that is, in the winter. In cold localities, however, mulching in winter has the advantage of protecting the surface roots from the frost.

The pear also requires a good deep soil, but not retentive of moisture. Leaf mould (very old manure), but not near the roots: loam and sand together form an excellent compost. Moor earth near rivers must be well drained in heaps, and a little unslaked lime added to correct it. If the soil be too heavy in any case, powdered charcoal, or burnt earth, are the usual palliatives.

The apple (which unfortunately is generally considered fit for any situation) prefers, on the contrary, a rather drier soil than the pear, and if in rather a gravelly spot, so much the better. Canker proceeds from neglect of this, a fertile

* This is the very opposite of the advice of American cultivators, which is to plant the peach in light soils. Indeed, no soil has been thought too light for the peach, except a perfect sand. We are inclined to believe that much of the decay of our peach orchards, and the so-called disease of the yellows, is to be attributed to a long course of *starvation*, applied to the peach tree. Certainly it can do no harm to try a generous treatment, and allow it to have a decent soil, and a little manure. We know that no such thing as the yellows exists in Great Britain, and we know too that the finest looking peaches—to say nothing about their flavor—are raised on walls and under glass in that climate.—ED.

source of discussion. The unwholesome sub-soil supplies vitiated food to the spongioles, and the sap thus corrupted breaks out at the weakest portion of the bark. Sometimes, however, the conjuncture of a sudden excess of pruning is the cause of this fatal disease, as it is of gum in other trees. Therefore, in weak trees, especially in the tender apricot, do not prune all the trees at one single time. On a due attention to the soil proper for each variety depends, in a very great measure, the success of the whole matter. No expense or care bestowed in this way, nor attention to these details, can ever be thrown away.

There is no doubt that pruning *during the summer months*, is too much neglected. There are so many demands upon the precious hours at this period, that this indispensable act has not often its due attention; then, when the winter surprises us, we are apt to find a huge, entangled, overgrown mass to unravel, demanding very much more labor and skill. This is a vicious custom with unskilful gardeners, because a severe use of the knife in the winter is to them the great resource and panacea for all evils. All their errors, they think, are thus obliterated until the next season's wood shall recommence. A tree severely cut back, and tightly nailed in, looks so very knowing, and argues so much forethought! No matter the age or kind of tree, a smart semicircle is described over its unhappy limbs, and branch after branch disappear "at one draw." The employer, meanwhile, looks on with amazement and wonder. The growth, progress, and periods of repose required by nature are highly suggestive to the thoughtful mind. The period of rest is now come, that of active labor ceases. All that was necessary to be done should have been accomplished before the stage of repose. Some little supplementary work still remains, for plants, as well as animated beings, are never idle; but the severer discipline applied to the tree should not be reserved for the winter pruning. During their stage of growth, superabundant vigor is restrained and checked, because at that early period wounds are not so difficult to heal, and the mere growth of the tree will soon cause them to disappear. A tree neglected during the summer will soon show signs of this forgetfulness.

It will then be no proper remedy to use the pruning knife with energy. It is as in life; we can only hope with reason to turn aside the violence of a wrong bias at the outset. An even balance should be preserved; no part of the whole system should run riot while the remainder unfairly languishes. Neither should winter pruning ever take place during a frosty season, for the knife lacerates the hardened wood and induces decay. To delay the pruning till the tree begins to feel the first movements of spring vegetation is also pernicious, for then the check is too great.

In the case of the peach, however, a mere beginner had better delay his pruning until he can fairly distinguish between a flower bud and a leaf bud.

Should the number of trees be great, the proper plan would be to commence with apricots, then the peaches; after these the plums, the cherries and the pears, reserving the apples for the last. A simple rule, but not generally known.

It is best to have more than one pruning knife, for peach pruning demands a sharp-pointed instrument.

To save time, a pair of strong pruning scissors is very convenient. With scissors the work is very rapidly done; there is nevertheless this disadvantage in their use, that they must be kept very sharp, or the buds will be quite torn away. Besides, it is impossible to cut very near to the buds, so that at the winter pruning another clean cut must be made with a sharp knife nearer to the part selected.

These cuts must always be made "at one draw" (as gardeners say), for the sake of appearance, and that the wounds may heal more rapidly.

DEFECTS OF SOME METHODS OF FRUIT CULTURE.

No doubt the climate of our country has many faults to answer for; its severe spring frosts are indefensible; its vicissitudes are highly reprehensible; and as to its autumnal gales, which shake off the hopes of the season prior to their complete maturity,—if that period ever does occur, according to a noted French authority,—the least a patriot can say in their defence, the better for his truthfulness.*

* With this honest confession, seldom admitted, our American cultivators can

But has the art of Horticulture nothing to answer for? It is true we can point to noble examples, such as Lindley, Rivers, Thompson, Knight, or Duhamel, Van Mons, and many others; but it is when gardening is practiced by men of moderate incomes that we are astonished at its mediocre results. The chief reason is, that the lower class of hired gardeners is often ignorant, prejudiced, and traditional in a wonderful degree. But so widely spread is the love of gardening, that very large sums are yearly spent even by persons of limited incomes, on their fruits and flowers. But the results are really disproportionate. How seldom is a well-kept garden to be seen. How seldom does the proprietor know the reason of his numerous failures.

This little work is offered therefore in the simple hope of helping some such person, who, having less leisure, cannot do as I have done, follow up my own trees, year after year, note-book in hand. My experience on this account cannot be valueless to him, and I have therefore freely given it.

One grand defect which is observable in the general treatment of fruit trees is, that very little difference is made in the care bestowed on the various kinds.

The dormant buds, which are the hopes of ensuing seasons, are treated on similar principles, the consequence of which is, that the centre of the tree is denuded of fruit, and an appearance of age is, by this means, induced, long before the tree has reached the period of decadence. As the sap ascends far more powerfully in the main channels than in the more distant and feebler portions, one would suppose that this would be a *guiding principle* in the treatment of the whole tree. But, instead of this, what do we generally see? In a few years, by unskilful pruning, the whole of the centre of the wall-trees and the interior parts of standards, are without fruit. It now abounds at the extremities of the branches; and, year after year, retires further and further from the centre of all. Large bare spaces are visible on every tree. Invaluable south walls are profitless; and there is no remedy but to cut back the unhappy tree.

duly appreciate the enthusiasm in orchard culture in Great Britain—an actual necessity—and not, as with us, auxiliary to the production of the best fruit.—Ed.

But, independently of the disfigurement of the garden wall, and the serious loss of time, this cutting back is an absurd and unnecessary plan. In the case of the peach, it hardly ever succeeds at all; especially if done in the winter, as is generally the case. Any method which should obviate this precessity must be useful, and, undoubtedly, "Cordon training" does this, as will be shown.

By keeping close to the centre of our work, instead of wearing out the whole, we refresh and stimulate incessantly the latent energies of the tree, because we seek for them in their chief source, *where nature has placed them*—the main stem. On the contrary, it is evident that an irregular excitation of particular and distant portions, while the remaining (and far more important parts) are left languishing and inert, must end in confusion, inferiority of production, and diminution of the flavor of fruit. As to the tree itself, it cannot fail to decay in some place or other, and be finally condemned as a disfigurement to the garden.

Another radical defect in fruit culture is the vicious custom of too rapidly inclining the bearing branches towards the horizontal line. By this plan the lowest stage must inevitably become the shortest and the most feeble, while, by all the rules of harmony, it should be the longest. This defect *once* commenced is fatal and irremediable, and some of the best portions of the wall and tree are lost for ever.

Many trees are trained fan-wise, and this, with proper precautions, is suitable only for strong growing varieties, and for those which, like the pear, are of long duration.

But, on the authority of M. Dubreuil, even the pear requires about sixteen years to reach to the top of an ordinary wall, admitting the necessity of a proper lateral extension. On the same authority, it is certain that the life of the peach is not valuable after twenty years, and if half of that period, *at least*, be spent in raising it to the summit, it is evident that it only arrives there when on the point of diminishing in production. During the time, therefore, that these trees, and others also, are reaching to the utmost limits assigned to them, the valuable wall space is unoccupied and useless.

This very serious defect has led to the introduction of the "Cordon system," by which the space of time required to cover a given superficies is abridged by two-thirds. As life is too precious to be wasted, and we naturally look for *speedy returns* for all the care and money which we bestow, if this system can really shorten the period of fructification, without corresponding disadvantages, it would be very proper to adopt it in preference to older methods, especially as it is adapted for all purposes required, and for all varieties cultivated.

POMOLOGICAL GOSSIP.

THE STRAWBERRY.—Our occasional correspondent, Mr. Prince, is writing upon the strawberry, its sexual character, &c., in the Horticulturist. While his article administers a deserved rebuke to the English botanists and cultivators of the present day, who ignore its polygamous character, it nevertheless contains several errors as well as truths. We shall endeavor to refer to the subject at a leisure time. The fault with Mr. Prince is that he assumes as facts what are mere theories, and ignores theories which are in truth facts. The whole question bestows little additional information to what we already possess in regard to the practical culture of the fruit, but as a physiological question it is one of much importance, showing as it does that the sexual character of the strawberry is wholly misunderstood even by the scientific botanists of the day.

Mr. Darwin, at a late meeting of the Linnæan Society, read a very interesting paper on the "Dimorphic condition in the species of *Primula* and on their remarkable sexual relations." Similar relations exist in some species of the strawberry, whose character is invariable and perpetual; and it is remarkable that it should have received so little attention from scientific botanists. An acknowledgment of this, and the general dissemination of the fact, would tend to explain the failure of numerous varieties to produce abundant crops.

NEW GRAPE FROM AUSTRALIA.—A correspondent of an English gardening journal, writing from South Australia, mentions a new grape in the following rather glowing terms: "I think I told you that I had a colonial seedling called the **BLACK MAMMOTH**, which was raised at Port Elliott, from **Black Prince**; and the same sowing gave me a dozen varieties, but this was the finest. I have four or five eyes which were struck late last season; but they will make, I hope, shoots a foot long during the summer, and then I must send them to you. It has something of the **Old Muscat of Alexandria** flavor; the berries are intensely black, and of the size of a medium-sized **Orleans plum**. It is not a wine grape, but I think it would be a grand thing for the English nurseries." If this, says the editor, when transported to our English climate and placed under circumstances favorable to the development of its real qualities, should bear out the promise which the above description shadows forth, and should moreover prove a manageable variety of good constitution, it will indeed be a valuable acquisition to our dessert fruits. It is not unreasonable to expect this, since the writer, who, when living in England, was a contributor to our early volumes, is well known as a man of strict integrity, and must know something of what our English varieties already contain.

MUSCAT GRAPES.—The discoveries which now and then take place as to the distinctness of certain varieties of the white **MUSCAT GRAPE**, have made it evident that there are in this question some points to be settled by pomologists when the materials are forthcoming. The question has not been overlooked, and we may hope in due time to see the evidence necessary to its settlement brought forward in an available form, a vineyard having been set apart at Chiswick for the purpose of growing all the obtainable reputed varieties known in cultivation. In the meantime, other evidence bearing on the question will no doubt be accumulating, and we are glad to be able to refer to that furnished by Mr. D. Thomson, of Archerfield, at some of the fruit meetings at South Kensington. In October last, Mr. Thomson sent an **EARLY MUSCAT**, grown along with other varieties of this class of grapes, planted in 1859, which early sort was stated to ripen fully six

weeks before the ordinary Muscat of Alexandria, and three weeks before the Bowood Muscat and others. A month later, four of these varieties, grown together and therefore fairly comparable, were shown, the four sorts produced being the **EARLY MUSCAT**, the **BOWOOD MUSCAT**, the **TYNNINGHAM MUSCAT**, and the **MUSCAT OF ALEXANDRIA**.

In respect to earliness it was found that the so-called Early Muscat was much the most advanced in ripeness at the time it was shown, and had every appearance of having been ripe, as stated by Mr. Thomson, six weeks before the Muscat of Alexandria, the berries having at the latter date become quite brown and shrivelled, while those of the other sorts were plump and full colored. Next to this, in respect to earliness, stood the Bowood Muscat, and then following it the Tynningham Muscat, and last of all the Muscat of Alexandria.

As to their appearance, Mr. Thomson's Early Muscat had a long tapering bunch, as in the Muscat of Alexandria, with large oval berries of a fine amber color, with firm flesh and a rich piquant flavor, marked by a delicate Muscat aroma. It was so highly approved that it was pronounced to be a very valuable early Muscat grape, quite distinct from any other variety. Then the Bowood Muscat was found quite different from the rest, having a short, broad-shouldered, thickly-set, compact bunch. The Tynningham Muscat had a long, loose tapering bunch, and appeared to be distinct from the others; while the bunches of the Muscat of Alexandria were long and tapering but closely set.

Such was the evidence afforded by this exhibition from Archerfield, and it seems to point to the real distinctness of some of the kinds which are reputed to be different. How many of these distinct sorts there may be, and what names are synonymous, are questions which the fruit committee of the Royal Horticultural Society will no doubt solve for us at the earliest moment possible.

EARLY ALBERT PEACH.—This is another of Mr. Rivers's seedlings. The fruit it bears are round, of medium size, and colored of a pale or creamy tint on the shaded side, and of a lively light crimson where exposed. The flesh, which is of excellent flavor, and very tender and melting, is quite pale at

the stone, from which it separates freely. This promises to be a very desirable early peach.

CHAMPION HAMBURGH MUSCAT GRAPE.—Still another seedling variety obtained by Mr. Melville, gardener to the Earl of Roseberry, at Dalmeny Park, Linlithgowshire, is a new grape, raised from what Mr. Melville calls the Champion Hamburgh, (but which it seems probable may be Mill Hill Hamburgh,) fertilized by Cannon Hall Muscat. When first presented to the notice of the fruit committee of the Royal Horticultural Society, in the course of last summer, it was found to be a richly-flavored grape, with firm, sweet, juicy flesh, and having a marked musky aroma. The clusters were large and well set, resembling those of Mill Hill Hamburgh; the berries were of the rounded-oblate hammered form seen in several of the varieties of the Hamburgh class, and were of large size, with a grizzly-red color. When subsequently shown the berries had acquired throughout an inferior dull-red color, the flesh being still firm, rich, and juicy, with a distinct Muscat aroma. The impression produced on the first appearance of this novelty, that it was likely to prove a desirable grape, was fully confirmed when it was again brought forward. It is moreover perfectly new and distinct in character, and may therefore be considered an acquisition.

WILSON'S ALBANY STRAWBERRY.—At a recent meeting of the Illinois State Horticultural Society, which continued three days, all the different fruits were discussed, and the opinion of Western fruit growers fully expressed. The strawberry coming up in due course, a variety of opinions were given in regard to strawberries. Wilson's Albany begins to taste sour. One speaker was down on it; said it took too much sugar; was prolific and hardy; nice to send to market, but not good when it got there. Mr. Galusha confirmed this opinion. Notwithstanding this, and strong efforts to displace it from the general list, several members thought it was better than none; for so unfavorable is the soil, or so bad the treatment of other kinds, that Mr. Douglas said the only strawberries the public could get the last two years were Wilson's Albany. The editor of the Wisconsin Farmer, who was present, says, in regard to the discussion, "Wilson's Albany

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is getting a little sour, else some of the strawberry growers had their teeth set on edge by some still worse, and now have no hope of a 'smooth run' in anything short of Triumph de Gand. Evidently somebody's pockets needed a new hobby to ride. Wilson's is too common—not much sale." That is the truth.

TREE WOUNDS AND MEANS OF HEALING THEM.

BY M. EUGENE FORNEY.

FEW subjects connected with the management of trees, especially of old plantations, whether fruit or ornamental, can be more interesting than that in regard to the treatment of wounds caused by severe pruning, or by accidents from winds or storms. It is no unusual thing to see large trees, which should be in prime vigor and health, show signs of early decay from the simple loss of one or two large limbs.

Notwithstanding this, there seems to have been but little attention given to the subject, and in fact no well authenticated experiments made, that we are aware of, to test the best means of treating large wounds. Sometimes we see them left bare; at others coated over with common paint; indeed we know the latter course to have been pursued with all the trees in the public streets of a neighboring city; tar, shellac, and various substances are used, but whether with good or bad effects we are unable to state.

Believing, however, that in a majority of cases no measures are taken to prevent injury from tree wounds, and that in a large proportion of the remainder they are injudicious, we copy the following hints by a French writer, who seems to have made the matter a study, and pursued a course of experiments to test at least some of the methods recommended abroad. We have no doubt they will be read with deep interest, and awaken attention to so important a matter. If trees, from which very large limbs are cut off, are rightly managed, there is very little danger of material injury to them; while a little neglect is sure to end in their ruin.—ED.

In endeavouring to heal a wound on the stem of a tree, the first proceeding is to make the wound smooth, clean, and level with the rest of the stem. Whatever tends to prevent the bark from closing over the wound is injurious. When a wound, no matter what its length may be, does not exceed in breadth one-fourth of the circumference of the stem, it will, if the tree is healthy and has not reached its limit of growth, be healed over as soon as the bark joins together, and before there is time for the wood to be injured by moisture and heat. If the wound is wider and extends to a third or more of the circumference, the edges of the bark take a considerable time before they can join, and the wood from long exposure begins to decay, forming a hollow which can only be imperfectly covered by the edges of the bark rolling inwards upon each other.

Naturally enough it has been considered a desirable object to heal the wounds of trees, and thus to preserve the wood which has been laid bare from decay. It is well known that there is no natural means of hastening the healing of the wound; all that can be done is to remove such causes as are calculated to impede the natural process. There is no way with which I am acquainted for preserving the wood from rotting when the wound is too large to heal over; and all means that may be resorted to for the prevention of decay will do more harm than good. Let us examine the effects of some compositions for wounds.

1. Moderate-sized wounds made perfectly smooth with a sharp-cutting instrument, nature herself will heal over. Under favorable conditions the new bark glides over the smooth wood, which gradually becomes covered. It would not be so if the wound were irregular, or if it were made with a saw, the teeth of which would tear and bruise the fibres of the bark and wood so as to prevent healing.

2. Moderate-sized wounds covered with *Onguent de Saint Fiacre*. [This is a grafting clay, consisting of a mixture of clay and cow-dung.] It is well known that the drying effects of air and more especially of the sun's rays are detrimental to the healing of a wound; nevertheless, from an experiment made by me, it appears that the above application is attended

with but little advantage. From a vigorous sycamore, with smooth bark, two slips of the latter, about two inches in breadth, were removed, and one of the wounds was covered with a sufficient thickness of the above-mentioned grafting clay. The first year the wound covered with that composition had closed up 7-10ths of an inch, whilst the other wound not so protected was reduced rather more than 6-10ths. In the second year the former wound, which was still kept covered with grafting composition, was again diminished 8-10ths; and the wound left bare had decreased from 6 to 9-10ths, the mean diminution being nearly 8-10ths. Thus the application of the grafting clay caused little difference in the healing. Perhaps it might have produced a better result in an older and less vigorous tree.

3. Wounds protected with a coating of tar.—Two branches of an elm, of equal diameter, were cut back in 1851. One was tarred, the other was not. The section was four inches in diameter. The one which was not tarred was about five years before it healed over completely; whilst the one which was tarred was seven years in doing so, and even then the cicatrice was much less regular. During the first two years in particular, the untarred wound healed twice as fast as that tarred; but afterwards there was very little difference in the rate of growth. Coal tar applied to wounds must be very deleterious; the kind used in the experiment was vegetable (such as Stockholm tar); and I attribute the injurious effect of this to its black color, which by absorbing the rays of heat occasioned an extremely high temperature, so that the sap (or young tissue) which tends to grow over the tar is to some extent baked and dried up.

These experiments, incomplete as they are, induce me to regard every application that obstructs the perfect closing over of the bark as more hurtful than beneficial; grafting clay, however, is an exception, because it cannot hinder the bark from closing over the wound, but salves, balsams, cements, and plasters, which soon scale and crack, permitting moisture to reach the wound, are bad.

I am only acquainted with one case in which a coating of tar proves beneficial, and that is when a tree has been trans-

planted, for the wounds do not then heal over, and the sap evaporates. This evaporation may be prevented by the use of a composition. I never plant a tree without applying grafting wax to the wounds.

Now, let me ask, does a coating of tar prevent rotting in wood which is laid bare? I am persuaded that the tar, instead of preventing the decay of wood which is moist and full of sap, has quite a contrary effect; being black, it acquires a high temperature when exposed to the sun; the sap becomes heated and ferments, it cannot evaporate, and the wood decays. I have cut off with a budding knife a piece of wood from a wound which had been healed over without being covered with tar. The wood beneath the covering of new tissue was healthy and white beyond the depth of 3-10ths, or little more than a quarter of an inch; whereas the wood lying underneath a coating of tar was yellow, and looked as if had been burned to the depth of fully three-quarters of an inch, and in some places this discoloration extended to a much greater depth.

As regards large wounds on old trees, the vigor of which has so far declined that they cannot effectually heal, nature may be assisted by adopting the following mode of proceeding, which I have only practised in one instance on an old lime tree, whose wound (a large one) I was enabled to completely cover over in three years. The bark at the edges was raised both at top and bottom to a good distance, and the ends of young branches or grafts cut sloping (as is done in rind grafting) were inserted beneath the raised bark at the upper and lower edges of the wound. The branches employed as scions were clean healthy ends of branches. They were placed side by side, but not too close together, and thus formed a sort of grating over the wound. The upper and lower edges of the wound were coated over with grafting wax, and the whole was covered with grafting clay; the branches grow and unite so as to cover the wound. In this way I intend next spring to repair the branches made by time in a fine avenue of trees.

FLORICULTURAL NOTICES.

MORE NEW PLANTS FROM JAPAN.—The valuable additions made to our gardens by Siebold, from Japan, are now familiar to most cultivators. Among them were the Japan and other lilies, *Spiræa prunifolia*, *Viburnum plicatum* and other shrubs. Thoroughly acquainted with the Japanese, and probably aware of the riches in store, Dr. Siebold returned to Japan in 1859, and still resides there, sending home to Holland from time to time all the rare plants his explorations enabled him to collect. These it now appears, or such of them as have been propagated, are offered for sale, and a *Catalogue* has been published, which we find noticed in the *Gardeners' Chronicle*. It is called the "*Catalogue Prodrome des Plantes du Japon, introduites en Hollande dans les années 1859, 1860 and 1861;*" or, a Preliminary List of Japanese Plants introduced into Holland, in the years 1859, 60 and 61.

From the introductory remarks we learn that Dr. V. Siebold returned to Japan in the beginning of 1859, since which time he has been frequently sending home collections to his late nursery in Holland. "We now possess," says the *Catalogue*, "more than 300 new species and varieties, most of which have been cultivated for centuries in Japan, the ancient seat (*Siege*) of the Flora of Eastern Asia." We cannot pretend to explain the meaning of this last sentence; suffice it to say, that according to the list before us, a very large collection of plants, many of which are really new, or said to be so, has been brought together, and cannot fail to add important features to European gardens, provided those who have the charge of the propagation and sale shall supply their customers with sound healthy specimens.

It must not, however, be supposed that all the plants in the *Catalogue* are worth cultivating for ornament; some are valuable only for their useful qualities; others are mere botanical curiosities. Let us endeavor to point out those which promise best. In doing so we follow the arrangement of the *Catalogue* itself:—

TREES AND SHRUBS.—Under this head are placed indiscriminately about a couple of hundred names of hardy and green-

house plants, many of which are anything rather than new. Such are *Citrus japónica*, *Mahonia japónica*, *Dióspyrus Kaki*, *Illicium anisatum*, &c. On the other hand, there are several new varieties of the beautiful Japanese Acers; double-flowered peaches, which may or may not be the same as Fortune's; and several aucubas; two bamboos, a walnut, *Magnolia hypoleuca* and *nymphæoides*, *Rhododéndron Metternichii*, no doubt a fine thing, and others. Moreover, in this part of the Catalogue we find "eight sorts of pears," some of which bear enormous fruit that keep in Japan from autumn to the month of July; it is to be hoped they are not like Chinese pears, as hard as sandstone. We are also informed that the acorns of *Quercus cuspidata*, called *Si*, are as eatable as Spanish chestnuts and have the same taste.

CONIFERS.—Here we find mention made of three *Cryptomerias* called *auraucaroides*, *sénilis* and *gracilis*, a *Juniperus lutea*, a *Pinus* called *Gojomatis*, (what a name!) and some new *Retinosporas*.

PALMS include two only, viz., *Cycas prolifera*, which is not a palm, and *Chamærops excelsa*, which we take to be Fortune's *Chusan* kind.

HERBACEOUS PLANTS.—Those which strike us as most worth inquiring for are *Eriáanthus japonicus*, a group not unlike the *Pampas*, *Lychnis Senno*, a couple of *Primulas*, *japónica* and *pyramidalis* and *Trichosanthes japónica*.

Of **YAMS**, four are mentioned, with the following note from Dr. Siebold. "These are the sorts cultivated in Japan. I have examined them, and can recommend them as excellent substitutes for the potato." The Royal Horticultural Society should look after them immediately.

Of **LILIES**, above a hundred Japanese varieties are known, the flowers of many of which have not yet been seen. All that have been ascertained seem to be in the Leyden Nursery.

Of **ORCHIDS** a few are mentioned, but until we ourselves see the flowers we can say nothing about them. Some names are, in botanical sense, almost mediæval. For instance, *Epidendrum moniliforme*, is a *Dendrobium*; *Limodorum ensatum* is a *Cymbidium*; there is, however, the singular *Cypripedium japonicum* worth the attention of the curious, and

three other orchids, rejoicing in the names Kauran, Nagiran and Nagoran, but whether terrestrial or epiphytal the Catalogue does not say.

In conclusion, a good many FERNS have reached Europe, but they are not named.

No prices are given in the Catalogue. Those who wish to purchase should address Messrs. Siebold & Co., at Leyden.

NEW SPECIES OF ZINNIA.—Among the annuals collected together last summer in the garden of the Royal Horticultural Society, at Chiswick, we noticed a new and distinct species of Zinnia, which may be called *ZINNIA AU'REA*. It was said to be a Mexican plant, and had been received as a *Sanvitalia* from that country. Its distinguishing features were its dwarf bushy habit of growth, its hairy branches, its sessile ovate lanceolate leaves, and its orange yellow flower-heads, measuring about an inch and a half across. It has certainly the merit of distinctness, and, if it will bloom in sufficient abundance, its dwarf branching habit will recommend it as a border annual. We mention the plant in order to direct towards it the attention of the growers of annuals. The Chiswick plants did not come into flower till late in the season, and were not very favorably placed, so that the true character of the plant was hardly developed. The plants formed individually, spreading tufted masses of about a foot in height, with the stems branching freely in a dichotomous manner, and the branchlets all terminated by one of the bright-colored heads, in which the ray florets were crowded, broadly obovate, and of a rich orange yellow, the disk with its dark-tipped pointed scales, being of a deeper orange, and somewhat prominent.

THE FINEST NEW ROSES.—The Rev. W. F. Radcliffe, one of the best amateur cultivators of roses, recommends the following as the finest of the newer varieties:—

1st. Eugene Appert, Empereur de Maroc, Comtesse Cecele Chabrilan, Dr. Bretonneau, Stephanie Beauharnois, Georges Dupont, George Peabody, Souvenir d'Elize, Celine Forester, Octavie Fontaine, Marie Thierry, Monsieur Jard, Reine de la Cité, and Francis Arago.

2d. Later novelties, viz., Mad. Furado, Triumph d'Amiens, Washington, La Boule d'Or, M. Melaine Parmentier, Duc de

Cases, Gloire de Santhenay, Senateur Vaisse, Mad. Louise Carique, M. Chas. Crapelet, Belle de Bourg La Reine, M. Bonnaire, Victor Verdier, and L'Elegant. These are all, he says, good roses.

611. *HOYA LACUNOSA*, VAR. *PALLIDIFLORA*. PALE-FLOWERED
FURROWED HOYA. (Asclepiadææ.) Java.

Bot. Mag., 1861, pl. 5272.

A pale-flowered variety of *H. lacunosa*, of no particular beauty, and only interesting in extensive collections. Flowers small and nearly white. (*Bot. Mag.*, Oct.)

612. *MUTISIA DECURRENTS* Cav. DECURRENT-LEAVED MUTISIA.
(Compositææ.) South America.

A greenhouse plant; growing 4 to 5 feet high; with brilliant orange-colored flowers; appearing in summer; increased by cuttings; grown in light rich soil. Bot. Mag., 1861, pl. 5273.

The genus *Mutisia* is "remarkable for the peculiar habit of the species, generally scandent, with cirrhose leaves, and for the great size and rich coloring of the flowers." The present plant is a late introduction from the Andes, and flowered in the nurseries of Messrs. Veitch last summer. It is a truly splendid species, with flowers four to five inches in diameter, somewhat in shape and appearance like the *Gazania*, but of a very brilliant orange color. The leaves are narrow, alternate, with a tendril at the apex by which it climbs, and decurrent at the base; the flowers appear on long stems at the axils of the leaves. It stood out the severe winter of 1860 unharmed, and without shelter.

As it flowers in summer it may prove a valuable addition to our collections, treated like other half-hardy plants, turned out into the border, and lifted and protected by the frame or greenhouse in winter. As we have few climbing plants of the *Compositæ* order, it will form a pleasing and showy variety. (*Bot. Mag.*, Oct.)

613. *SALVIA CACALIEFLO'RA* Benth. CACALIA-LEAVED SAGE.
(Labiataææ.) Mexico.

A greenhouse plant; growing two feet high; with deep blue flowers; appearing in summer; propagated by cuttings; grown in good rich soil. Bot. Mag., 1861, pl. 5274.

This pretty plant we have already noticed. It was introduced by Mr. Linden from Mexico, and it flowered abundant-

ly in our collection the past season. As a bedding plant it is a fine acquisition. The flowers are of the same rich blue as *S. patens*, but not so large and showy; it has, however, a bushy habit, grows rapidly, blooms abundantly, and forms a rich contrast with *S. splendens* and *fulgens*. (*Bot. Mag.*, Oct.)

614. *GONATA'NTHUS SARMENTO'SUS* Link. Kl. & Otto. SARMENTOSE GONATANTHUS. (Aroideæ.) Himalaya.

A stove plant; growing three feet high; with yellowish flowers; appearing in summer; increased by offsets; grown in light peaty soil. *Bot. Mag.*, 1861, pl. 5275.

This pretty plant was separated from the genus *Caladium*, by Dr. Klotzsch, under the name of *Gonatánthus*, and is the only species thus far. The separation is made from the geniculated character of the tube of the spathe. It has large cordate ovate dark green leaves, ten inches long, and throws up long stems terminating with yellowish convolute leaves a foot long. It requires the same treatment as the *caladiums*. (*Bot. Mag.*, Oct.)

615. *IMPATIENS FLACCIDA* Arn. SOFT-LEAVED BALSAM. (Balsamineæ.) India.

A stove plant; growing a foot high; with rich purple flowers; appearing in spring; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1861, pl. 5276.

A lovely species from Ceylon, on mountains at an elevation of 4,000 to 6,000 feet. The flower stems of the plant are reddish, and the flowers opening nearly flat, are an inch or more in diameter. The whole habit is neat and slender, and it is much the handsomest of the hothouse species of this pretty family. (*Bot. Mag.*, Oct.)

616. *VACCINIUM IMRAYI* Hook. DR. IMRAY'S VACCINIUM. (Vacciniaceæ.) Dominica.

A greenhouse shrub; growing two feet high; with yellowish-green flowers; appearing in spring; increased by cuttings; grown in sandy peat and leaf mould. *Bot. Mag.*, 1861, pl. 5279.

A remarkable looking species, which forms a handsome evergreen shrub, with glossy coriaceous leaves. The flowers are large, and remarkable for their uniform yellow-green, unusual in this genus, and for the coriaceous texture of the corollas. The flowers appear in rather compact terminal corymbs; the anthers are of an orange color. (*Bot. Mag.*, Nov.)

617. *HIGGIN'SIA REGALIS* *Hook.* ROYAL HIGGIN'SIA. (Rubiaceæ.) South America.

A stove plant; growing a foot high; with variegated leaves and yellow flowers; appearing in summer; increased by cuttings; grown in leaf mould, sand, peat and loam. *Bot. Mag.*, 1861, pl. 580.

This is the now popular and beautiful variegated plant known as *Campylobotrys regalis*, introduced by Mr. Linden. It is one of the richest and most attractive of foliaged plants. The leaves are large and broad with a prominent midrib, and they are regularly traversed with lateral bands of blackish green; the underside being of a peculiar rich reddish violet, with conspicuous nerves. Mr. Linden thinks it no exaggeration to affirm that it eclipses the magnificent *Cyanophyllum*. It is a superb acquisition. (*Bot. Mag.*, Nov.)

618. *STANHOPEA BUCEPHALUS* *Lindl.* BULL-HORNED STANHOPEA. (Orchidaceæ.) Ecuador.

A stove orchid; with orange-spotted flowers. *Bot. Mag.* 1831, pl. 5278.

One of the richest colored of all the species of the *Stanhopea*, having the ground color of a rich tawny orange, marked with deep blood-colored spots; it yields a powerful fragrance. It flowers in August, and is one of the finest orchids. (*Bot. Mag.*, Nov.)

619. *PHYLLAGATHIS ROTUNDIFOLIA* *Blume.* ROUND-LEAVED PHYLLAGATHIS. (Melastomaceæ.) Sumatra.

A stove plant; growing three feet high; with crimson flowers; appearing in summer; increased by cuttings; grown in light peaty soil. *Bot. Mag.*, 1861, pl. 5282.

A pretty melastomaceous plant, "whose charms depend more on the rich color of the foliage than on the beauty of the flowers, though in the present instance we have their color also; but it is outdone by the rich tints of the leaves, both above and below, and the plaited character of the latter, with their strong shadows and reflected lights. It flowers in July and is a fine addition to beautiful foliaged plants. (*Bot. Mag.* Nov.)

620. *ECHINACEA ANGUSTIFOLIA* *De Cand.* NARROW-LEAVED ECHINACEA. (Compositæ.) United States.

A hardy perennial; growing three feet high; with rose-colored flowers; appearing in the autumn; increased by division of the roots; grown in good garden soil. *Bot. Mag.*, 1861, pl. 5281.

This is one of our native plants from Iowa, the seeds of which were sent to England. It is allied to *Rudbeckia*, (from

which genus it was separated by Mönch,) and peculiar to the western and southwestern states. The plant grows three feet high, with simple hairy stems and solitary flowers, which are five to six inches in diameter, rather coarse, like the larger *Rudbeckias*, but pleasing from the rosy-purplish tinge of the petals. It is somewhat surprising that it has not been introduced to our own gardens. (*Bot. Mag.*, Nov.)

OUR HARDY HERBACEOUS PLANTS.

BY THE EDITOR.

THE common Garden Anemone (*A. hortensis*) is one of the most beautiful spring flowering plants; but in our climate it is not easily cultivated and we rarely see it in our gardens. Its curious looking corms or tubers, which often puzzle young amateurs to know which is the top or bottom, will not stand our winters without the protection of a frame and sufficient covering to keep out the frost; and if planted in spring the dry weather overtakes them before they are thoroughly rooted, and prevents a vigorous growth and abundance of bloom.

The herbaceous varieties, however, though few in number, are perfectly hardy and bloom freely; among these there is none more worthy of attention than the *A. Narcissiflora* *Lin.* (FIG. 2.)

ANEMONE NARCISSIFLORA, L.

This species is a native of Europe, and is found abundantly on the Pyrenees and high Alps; and in company with the *A. alpina* inhabits the prairies of the Lantarat and Dauphin in France. But notwithstanding its alpine habit it flourishes finely in garden culture, a marked exception to the general character of plants from such localities. Subjected to the same treatment as other border perennials it has grown freely, increased naturally, and flowered in profusion. Undoubtedly a soil more suited to its native locality, such as a sandy peaty earth, would enhance its beauty, but it is not necessary to a free development of its health and growth. It only suffers

when the soil is too wet, and in such a situation a good drainage and plenty of sand will obviate any danger to the plants.

Our engraving gives a good representation of the plant; its radical leaves are palmate, much divided, and form a leafy base from which arises its flowering stems, which reach the height of a foot, and are terminated with a handsome head of beautiful white flowers.



2. ANEMONE NARCISSIFLORA.

It produces seeds freely, from which young plants may be raised; or it may be increased by dividing the roots in the spring or autumn. The seeds should be planted immediately after they are gathered, as they soon lose their germinative property.

The *A. Narcissiflora* is a beautiful plant for rockwork, and where there are such appendages to the garden it should find a prominent place, among other alpine plants.

The other kinds of anemone, which claim the attention of the amateur, are the following:

ANEMONE NEMOROSA PLENO, (Double-flowered.)—A pretty double variety of our common and well known wild anemone, like it in habit and foliage, but with double flowers, which appear very early in the spring. Increased by division of its woody roots.

ANEMONE APPENINA, (Blue.)—A very pretty species, growing four inches high, with sky blue flowers, in early spring.

ANEMONE PULSATILLA, (Common Wind Flower.)—A very pretty species, growing six inches high, with finely cut foliage and purple flowers appearing in June.

ANEMONE SPECIOSA, (Showy Anemone.)—Under this name we cultivate a very handsome species, growing six inches high, with creamy white flowers; probably this is not the true name. It is, however, a fine addition to a collection. Flowers in summer and continues in beauty a long time.

ANEMONE JAPONICA, (Japan Anemone.)—When well grown this is a very showy and ornamental plant, blooming abundantly very late in autumn, even after slight frosts. It grows nearly two feet high, produces semi-double purplish crimson flowers, and likes a good peaty soil.

ANEMONE JAPONICA HYBRIDA, (Hybrid Anemone.)—Somewhat like the *A. japonica*, of which it is a hybrid variety, but producing paler or rose-colored flowers.

There are other species and varieties which would be desirable acquisitions, but as we have not cultivated them or proved their hardiness we omit a notice of them here.

Gossip of the Month.

BONAPARTEA JUNCEA.—In our notice of the flowering of this plant in Messrs. Ellwanger & Barry's collection, we stated that it was probably the second time it had flowered in the country. Since then we have learned

that it flowered in the collection of H. W. Sargent, Esq., Wodenethe, Fish-kill Landing, N. Y., in the autumn of 1860, though we do not recollect of seeing any notice of it at the time. Mr. Sargent has favored us with the following interesting account of the blossoming of his plant:—

“I observe, under your Gossip of the Month, an account of the flowering of *Bonapartea juncea*, of Messrs. Ellwanger & Barry, in which you say you believe it is the second time it has flowered in this country; allow me to make it the third. I had a plant which flowered about the same season, but the year before (1860). It must have been about the same age of Messrs. E. & B.'s, as I have had it at least twenty years. My flower stem was, however, a little higher, being nearly fifteen feet. With this exception your account of the Rochester plant for the past twenty-five years, up to the time of its flowering, corresponds entirely with mine. For twenty years or more, as one of a pair, it remained in the same pot, making little or no growth—doing duty in the summer, on an architectural balustrade, and disappearing in the winter as of little use among flowers. Since flowering, (now over a year ago,) it has become a little decrepit, not making its usual appearance on the balustrade the past summer, but rather seeking, from its wan and feeble look, a retirement among the hospital plants. Whether, like most of its aloe cousins, the efforts of a quarter of a century or more, necessary to produce one bloom, will be sufficient to destroy its life, I am not yet sufficiently prepared to say.—Truly yours, H. W. SARGENT, Wodenethe, Jan. 14, 1862.

AMERICAN POMOLOGICAL SOCIETY.—The next meeting of this Society will be held in Boston, commencing on Wednesday, the 17th of September, 1862. The Annual Exhibition of the Massachusetts Horticultural Society will be held the same week. This arrangement has been effected to make the visit of horticulturists from other states more interesting, and afford them an opportunity to witness a grand display of fruit should the season be favorable. The Massachusetts Horticultural Society will do all in their power to make the occasion as pleasant and agreeable as possible. The Executive Committee were authorized to make arrangements to this end.

THE ANNUAL EXHIBITION OF THE MASSACHUSETTS HORTICULTURAL SOCIETY will be held in September next, commencing on Tuesday the 16th and continuing till Friday evening the 20th.

PLANTS FROM JAPAN.—We are pleased to learn that Mr. T. Hogg of New York has been appointed to the situation of Marshal, and attached to the new embassy to Japan, Hon. R. L. Pruyn as minister. We shall look for some acquisitions of choice plants, through the agency of Mr. Hogg.

THE FRUIT GROWERS' SOCIETY OF WESTERN NEW YORK held its Seventh Annual Meeting at the Court House, in the city of Rochester, on the 8th and 9th of January. An account of the proceedings is given in the Rural New Yorker, which we shall notice in our next number.

Horticultural Operations

FOR FEBRUARY.

FRUIT DEPARTMENT.

The month of January has been mild, the lowest range of thermometer having been 4°. It has, however, been cloudy, snowy and rainy more than half the time, and rather unfavorable for early forcing.

GRAPE VINES in the grapery will now begin to show signs of starting; and as soon as this is perceived they should be syringed every day, and an even temperature maintained until all the eyes are well broken. See that the outside border is well protected with a good covering of manure. Increase the temperature towards the last of the month, and in sunny weather damp the walks every day. Vines in greenhouses will also begin to push, and will require the same treatment as graperies, with the exception of less syringing, which might be injurious to the plants. Vines in pots, started early and now in flower or fruit, should have every attention to insure good crops.

STRAWBERRIES in pots should be more freely watered as the plants begin to grow vigorously.

ORCHARD HOUSES should be still well protected from frost.

ROOT GRAFTING may be done now where this kind of grafting is practiced.

FRUIT TREES in pots, now in flower or setting their fruit, may be more freely watered and have an abundance of air.

FLOWER DEPARTMENT.

February is a short month, and spring will soon be at hand. Now is the time to push forward all kinds of propagation, whether bedding plants or general stock. Repotting, too, should be attended to before the plants begin to make their new growth. Seeds should be planted and preparations made for hotbeds and frames for over-crowded stock. The houses should be rearranged, and plants coming into flower be brought forward to take the place of those going out of bloom. Slightly increase the temperature as the season advances, and air abundantly in all good weather to obtain a strong and stocky growth.

AZALEAS will now begin to push their buds, unless they are kept in a very cold house; where this cannot be done, they may be removed to a cool light cellar, which will retard them sufficiently to bloom in April and May. As they begin to push, they will need more water and occasional syringing till the flowers expand. Young stock may be repotted, and plants intended for specimens started into growth immediately.

CAMELLIAS will be in full bloom. Water more liberally, and repot if the plants really need it. Shade from the hot sun in the middle of the day. Inarching may be done now.

PELARGONIUMS will be making a stocky growth if properly attended to; increase the temperature slightly, but air abundantly every fair day; water moderately, tie out the shoots as they advance in growth, and give every plant plenty of room to extend its shoots. Repot all young stock.

CINERARIAS should now be repotted into their blooming pots; keep in a rather cool situation near the glass. Pinch out the main shoot, which will cause the plants to throw up several stout blooming shoots: fumigate for the green fly.

AMARYLLISES should be repotted.

CALADIUMS AND BEGONIAS should be divided and repotted in light peaty soil, and have a very warm situation.

FUCHSIAS should be encouraged by repotting.

JAPAN LILIES should be repotted.

ROSES should be repotted, and watered occasionally with liquid manure.

CHRYSANTHEMUMS may be propagated where fine specimen plants are wanted.

SEEDS of various annuals should be planted.

PANSIES in pots should be repotted.

NEAPOLITAN VIOLETS in frames, now brought into the house, will bloom abundantly.

LILIUM GIGANTEUM should be repotted.

HEATHS out of bloom should be removed to the coolest part of the house.

GLOXINIAS AND ACHIMENES may be potted and started in a hotbed.

MONTHLY CARNATIONS should be repotted. Cuttings may be put in for a young stock.

CYCLAMENS should now have more liberal supplies of water. Sow seeds for new stock.

REPOt, tie up, and put in order miscellaneous plants of various kinds.

PROPAGATE Verbenas, Heliotropes, Gazanias, Petunias, Scarlet Geraniums, Pyrethrums, &c. &c.

VEGETABLE DEPARTMENT.

HOTBEDS should now be got ready for raising all kinds of early vegetables. Throw the manure into a conical heap; as soon as it begins to heat well, turn it over, shaking the whole well up. In ten days it will be ready to make the bed, which, at this early season, should be two to three feet high, making it firm, upon which should be placed the frame, filled with six inches of good soil. As soon as it is well heated it will be ready for use.

CUCUMBER seeds should be sown in small 4-inch pots.

LETTUCE seed may be sown in rows in the bed.

TOMATOES should be planted in boxes or pots.

SEEDS of Cabbage, Broccoli, Cauliflower, and other vegetables, may be sown either in pots, or directly in the earth.

Protect the bed in cold weather with a good covering of bass or straw mats, and regulate the heat by due admission of air—the temperature of the manure should not exceed 90°, and that of the bed from 60 to 80.

GRAPES.

GRAPES and grape culture occupy so large a share of attention that we deem it unnecessary to make any apology for introducing them so frequently to our readers. There seems a demand for all the information that can be obtained, both as regards the numerous varieties already cultivated, and others recommended to notice, and the best method of cultivation; and although in either respect we can add but little of our own experience to what we have already stated, we can adduce the evidence of others able and qualified to express their opinion upon these subjects. In our Pomological Gossip, in another page, will be found some very interesting information upon grapes, communicated by an amateur cultivator, and, though evidently enthusiastic in all that relates to grapes, his views are so correct, and the experience he has brought to bear upon their culture so important, that we allude to them here as an evidence of how much a real interest in any particular branch of fruit growing will add to our stock of information. Improvements in cultivation are rarely the result of accident; but are rather due to sound judgment, a thorough knowledge of the principles of growth, and a determination to overcome all obstacles to success.

In our late article we particularly alluded to the Rebecca, as being the finest of all our native grapes; we stated that "it only needs the right kind of treatment to render it as certain a crop as the Delaware or Diana." Our views are thus fully confirmed, and it appears that a vigorous growth, however obtained, will accomplish this; and one of the readiest means of securing this growth is to graft it upon some strong and free-growing stock like the Clinton. So much then has been gained in our knowledge of the culture of this delicious grape.

Grapes undoubtedly, like other fruits, require different treatment; some pears will bear close pruning, while others are only rendered comparatively barren by the same course

of culture. So with grapes; the slender-wooded varieties, which ripen their shoots slowly, may need some aid to check redundant growth and secure ripe wood, while other kinds do this naturally and without any care. A little attention, therefore, to these slight defects of habit will enable us to overcome the characteristics of certain kinds, and render them as certain as the most free-growing and robust sorts.

Having alluded to the best means of imitating the last extremely favorable season, we shall not repeat our advice, but refer to what we then stated as the course of culture to ensure the very best results.

It has been our good fortune in years past to present a pomological review of the year from the pen of our friend and correspondent, the Hon. Mr. Cabot of Salem, now Chairman of the Fruit Committee of the Massachusetts Horticultural Society, but, since his performance of that duty, such a review would be but a repetition of the report submitted by him to the Society, and published in its Transactions. We therefore refer with pleasure to his annual report for the season of 1861, and present our readers with his views upon grapes in Massachusetts, satisfied that they will be read with pleasure, and add to our stock of information upon grapes and grape growing throughout the country:—

Grape vines, when wholly exposed, even in favorable situations, to the influences of the last winter, and even when partially protected therefrom, were, in most instances, greatly injured; in some, killed to the ground; in others, having the leaf and fruit-buds destroyed. Some varieties escaped with less injury than others, and among those that the most successfully resisted the effects of the weather may be named the Delaware and Hartford Prolific. Out of a collection of eight or nine different hardy varieties, these, with the Clinton, were the only varieties that escaped serious harm.

But although the winter was so destructive, the past summer and autumn were the most favorable for grapes of any now remembered. The mildew, and not the severity of the climate, is the most serious obstacle to the raising of grapes. Last season there was no mildew, and varieties thoroughly

ripened and attained perfect maturity in this vicinity, that rarely, if ever before, were produced in the open air, in this condition, even when grown under peculiarly favorable circumstances.

For the first time, in a somewhat lengthened experience, the Isabella seemed to attain perfect maturity. It is true that this variety is often shown well colored and apparently ripe, but this ripeness has been apparent only, for there was a want of the sweetness that belongs to perfectly ripe berries, and even this was only attained when grown in favorable situations in cities, where shelter was afforded, and the severity of the climate somewhat tempered, while this year they have appeared perfectly ripe, even when grown in open exposures; so that it is felt that the assertion that for the first time this variety thoroughly ripened the past season, is warranted.

From its peculiarly favorable character, opportunity has been afforded the past season to form an opinion of the quality of some varieties, when grown in favorable climates, and in a state of, or approaching to, perfection; but this exceptional character of the year should deter the formation of a favorable opinion of the adaptation of such to cultivation; that should be confined to those sorts that ripen their fruit in ordinary years, and under a less advantageous combination of circumstances.

There have been some new grapes exhibited the past year. Of such, among foreign varieties, the Muscat Hamburg, a black grape, with berries of medium size, oval shape, rich Muscat flavor, and large bunches, made a very favorable impression, and was thought a very fine grape. And the Golden Hamburg, a new white grape, with large oval berries, was also considered of good flavor; the vines of both varieties being of a vigorous habit.

Of hardy varieties, for out-door culture, the committee have had an opportunity of tasting a new seedling of Mr. E. A. Brackett. It was a large round black grape, heavy bloom, large bunches, thin skin, little or no pulp, very juicy, sweet, and very vinous. Mr. Brackett stated that it was ripe on the 10th September. This has never been publicly exhibited; a

few berries of it were shown by Mr. B. to some of his friends in 1858, the first year of its bearing, about the middle of September, who were then very favorably impressed with it. This year, when it bore many bunches, Mr. Brackett presented a bunch to the committee; those of them who tasted of it formed the highest opinion of its value, and it seemed to them the best and by far the most promising new hardy grape that had been brought to their notice.

The committee have also the past season had an opportunity of testing some new seedling hybrids, from Mr. Edward C. Rogers of Salem, produced by impregnation of the native grape by the Black Hamburg, Sweetwater, etc. It has for some time been generally known that Mr. Rogers had been engaged in raising new seedling grapes by means of hybridization. Several of them were exhibited by him at the exhibition of the Essex County Agricultural Society, at Newburyport, a few years since, and were mentioned in the reports of that society of that year, and thus for the first time had attention been called to them; but although this was some time since, they have never been submitted to the committee of the Horticultural Society until this year, and thus must be considered new so far as this society is concerned. These grapes were shown by Mr. Rogers at the annual exhibition, and presented to the committee on 28th September, distinguished by numbers 1, 4, and 15; and again on October 4, when they were in better condition and riper than on the former occasion. No. 1 is a large oval white grape, with a slight amber tinge, juice somewhat watery, of a peculiar flavor, with a stringy pulp. It was probably not ripe, and in an unfit condition to be properly judged of.

No. 4 is a large dark purple or black oval grape, with considerable pulp, but with a sprightly or vinous juice.

No. 15 is a large, round, red or dark amber-colored grape, juicy, with a thin skin, tolerably sweet, and very slightly musky, perhaps not quite as vinous as No. 4.

Both Nos. 4 and 15 were, in the opinion of the committee, good grapes, though there was some difference of opinion as to which was entitled to the preference. The bunches of all the varieties were of good size.

No. 15 is very productive; a vine in the garden of Mr. Wm. H. Harrington, of Salem, three years planted, ripened the past year two hundred good sized bunches. Having seen them but once, and that in a year so exceptional as the past, the expression of any further opinion of the merit of these grapes, and their suitability for general cultivation, would be hardly warranted.

Considered as a purely scientific experiment, that of Mr. Rogers must be deemed an eminent success; his seedlings of the first generation have parted with much of the distinctive character of the native variety, and show plainly traces of their foreign parentage. Whether he has met with equal success in originating varieties that shall, from early ripening and hardiness, be suited to the general wants, is yet to be established. It is earnestly hoped that he has. He has many sorts other than these named, some, it is believed, that have not yet fruited.

Although Dr. Van Mons has taught, and apparently established, a contrary theory—that of improving varieties by raising successive generations of seedlings—and that it may be thought presumptuous to call in question the teachings in pomology from such a source, yet some doubt cannot but be entertained that hybridization is in the pursuit of this object, viz., the production of improved varieties, essential to success, and that the raising of successive generations of seedling grapes from a native or wild variety under circumstances where admixture of other sorts was *impossible*, might be pursued not for eleven generations, when, according to Van Mons, all the seedlings would be good; when the naming of varieties would become unnecessary, and propagation by grafting and budding cease, but for double that number, without showing any very marked improvement.

In a climate so austere as that of Massachusetts, it is believed all varieties of grapes require protection; that even if some may occasionally escape injury when this has been neglected, it cannot be wholly omitted with safety. Much attention of late years has been given to the production of new varieties from seed, and a hope, if not a belief, indulged that such attempts would eventuate in the production of hardy

varieties of good quality, not subject to mildew, that would, in ordinary years, attain maturity in free exposures. And some persons have, it is believed, even gone so far as to anticipate that grapes would become the object of extensive cultivation, and the making of wine a regular branch of industry. This may be so, and all their hopes may not be destined to prove fallacious. There is certainly reason to think that the list of varieties to be recommended for cultivation may soon be enlarged, probably by Mr. Brackett's seedling, or Mr. Allen's hybrid; perhaps by some of those of Mr. Rogers, and some others. Beyond this, however, at present, whatever it may be hereafter, no great and acknowledged advance has been made. Those old favorites, the Isabella, the Diana, and the Delaware, neither of recent, and the last of uncertain origin, still seem to maintain their wonted supremacy. And other than this, the expectations indulged do not seem, as yet, to have a more substantial basis than a hope. That the rocky hill-sides of Massachusetts are some day to be covered with vineyards, rivalling in their rich luxuriance of foliage and fruit those of France, demands a faith in her capabilities almost equal to that necessary to remove mountains, and is a belief not very soon, at least as it is thought, to be realized. At all events, for this at present, there is none other than an imaginary foundation, and the business of the day is with the realities of the time, and not its imaginings.

HALF HOURS WITH OLD AUTHORS.

BY WILSON FLAGG.

JOHN GERARD.—*The Herbal, or General History of Plants. Gathered by John Gerard, of London, Master in Chirurgery. 1597.*

This is one of the most ancient of the English works on gardening and botany, and one to which the most frequent reference is made by subsequent writers. Gerard was not only one of the most learned botanists of his age, but he is also remarkable for his quaintness and originality. He says

but little on the subject of laying out grounds, treating chiefly of particular plants and their cultivation. The remarks contained in his Preface and Introduction are, however, sufficiently original to be worthy of a retrospective review, and sufficiently old to be new to the most of our readers. His eulogy on plants, in his Dedicatory Epistle, is eloquent and poetical.

"Among the manifold creatures of God that have in all ages diversely entertained many excellent wits, and drawn them to the contemplation of the divine wisdom, none have provoked men's studies more, or satisfied their desire so much, as plants have done, and that upon just and worthy causes. For if delight may provoke men's labor, what greater delight is there than to behold the earth apparelled with plants, as a robe of embroidered work, set with orient pearls, and garnished with great diversity of rare and costly jewels?"

Again he remarks: "The necessary use of the fruits of the earth doth plainly appear by the great charge and care of almost all men in planting and maintaining of gardens, not as ornaments merely, but as a necessary provision also to their houses. And here, beside the fruit, to speak again in a work of delight, gardens, furnished with many rare simples, do singularly delight, when in them a man doth behold a flourishing show of summer beauties in the midst of winter's force, and a goodly spring of flowers, when abroad a leaf is not to be seen. Beside these and other causes, there are many examples of those that have honored this science: for to pass by a multitude of the philosophers, we may call to remembrance some noble princes, that have joined this study with their most important matters of state. Mithridates, the great, was famous for his knowledge herein, as Plutarch noteth. Evax, also, king of Arabia, the happy garden of the world for principal simples, wrote of this argument, as Pliny showeth. Dioclesian, likewise, might have had his praise, had he not drowned all his honor in the blood of his persecution."

He remarks in his address to his readers: "Although my pains have not been spent in the gracious discovery of golden mines, nor in the tracing after silver veins, whereby my na-

tive country might be enriched with such merchandise as it hath most in request and admiration; yet hath my labor, I trust, been otherwise profitably employed, in descrying of such a harmless treasure of herbs, trees, and plants, as the earth frankly, without violence, offereth unto our most necessary uses. Harmless, I call them, because they were such delights as man in the perfectest state of his innocence did erst enjoy; and treasure, I may well term them, seeing both kings and princes have esteemed them as jewels, and since wise men have made their whole life as a pilgrimage to attain to the knowledge of them."

Comparing the pleasures that accompany the studies of nature with the cares and perils attending the pursuit of riches, he says: "Behold in the compassing of this worldly dross, what care, what cost, what adventures, what mystical proofs, and chemical trials, are set abroad (alluding to the refining of metals and other processes attending the coining of money); whereas, notwithstanding, the chiefest end is uncertain wealth. Contrariwise, in the expert knowledge of herbs, what pleasures still renewed with variety! What small expense! And yet, what an apt and ordinary means to conduct men to that most desired benefit of health."

"The art of simpling (which is the ancient term for botanizing) is neither so base, nor so contemptible, as the English name may seem to intimate: but such as it is, as altogether hath been a study for the wisest, an exercise for the noblest, a pastime for the best. From whence there spring flowers, not only to adorn the gardens of the muses, but to deck the bosoms of the beautiful, to paint the gardens of the curious, to garnish the glorious crowns of kings; but such fruit as the learned Dioscorides long travelled for; and the princely Mithridates reserved as precious in his own closet."

We seldom find a more eloquent passage, even in late modern writers, than the following, in which Gerard sets forth the pleasures of a garden: "Talk of perfect happiness or pleasure, what place was so fit for that as the garden, where Adam was set to be the herbarist? Whither did the poets hunt for their sincere delights, but in the gardens of Alcinous, of Adonis, and the orchards of the Hesperides? Where did they dream

that heaven should be, but in the pleasant garden of Elysium? Whither do all men walk for their honest recreation, but thither where the earth hath most beneficently painted her face with flourishing colors? And what season of the year more longed for than the spring, whose gentle breath enticeth forth the kindly sweets, and makes them yield their fragrant smells? Who would therefore look dangerously up at planets (Gerard here probably alludes to astrology, which was more in vogue than astronomy in his day,) that might safely look down at plants? And if true be the old proverb,* *Quæ supra nos, nihil ad nos*; I suppose this new saying cannot be false,* *Quæ infra nos, ea maxime ad nos*. Easy, therefore, is this treasure to be gained, and yet precious. The science is nobly supported by wise and kingly favorites; the subject thereof so necessary and delectable, that nothing can be confectioned either delicate for the taste, dainty for smell, pleasant for sight, wholesome for the body, conservative or restorative for health, but it borroweth the relish of an herb, the savor of a flower, the color of a leaf, the juice of a plant, or the decoction of a root."

He remarks, in the commencement of his work, that in his history of plants it would be tedious to use by way of introduction any curious discourse upon the general division of plants, contained in the Latin under *Arbor*, *Frutex*, *Suffrutex*, *Herba*; or to speak of the differing names of their several parts, more in Latin than the English can well express.

In three books, therefore, as in three gardens, he arranged all his plants. In the first book he treats of grasses, rushes, corn, reeds, flags, and bulbous or onion-rooted plants: in the second book, of most sorts of herbs used for meat, for medicine, or sweet smelling: in the third, of trees, shrubs, bushes, fruit-bearing plants, &c.; roses, heaths, mosses, mushrooms, coral, and their several kinds.

John Gerard was born in 1545, in Cheshire, whence he came to London, and devoted himself to the practice of sur-

* Translated:—"What is above us does not concern us," on the other hand, "What is beneath us is of the greatest importance to us." That is, we should leave the study of the stars for the more important study of plants. Since astrology, however, has given place to astronomy, it would be hard to prove that the study of the stars is of no importance.

gery, in which he gained considerable reputation. His great work on plants was first published in 1597. In compiling this work, as he remarks, he made use of "divers herbals set forth in other languages." His predecessors, in the English language, were Dr. William Turner and Henry Lyte. Turner wrote a History of Plants, first printed in 1551; but the number of plants described in his book was very limited. Henry Lyte translated Dodonaeus, who wrote, in Latin, a work on Fruits and other Plants. The next work in English, after Gerard's Herbal, was the "*Paradisus terrestris*" of John Parkinson, already noticed in these pages. A new and enlarged edition of Gerard's Herbal, containing nearly 1,000 additional plants, was published in 1633, by Thomas Johnson.

It may not be uninteresting to the reader to know what fruits are described by Gerard, as common in England in his time, almost three hundred years ago. Of apples he describes seven kinds: the Pome Water, the Baber-ditch apple, the Queening, or Queen of apples, the Summer Pearmain, the Winter Pearmain, the King of apples, and the Crab apple.

In his description of apples he says: The fruit of apples differs in greatness, form, color and taste; some covered with a red skin, others yellow or green, varying infinitely, according to the soil and climate." He mentions the quantity of apples raised in Kent, as being so abundant, that of the cider made from them "the parson hath for tithe many hogsheds."

Writing of the pear, Gerard says that every country "hath its peculiar fruit: myself knoweth some one curious in grafting and planting of fruits, who hath in one piece of ground, at the point of three score, sundry sorts of pears, and those exceeding good." From this one may infer that the pear had been multiplied into a greater number of varieties than the apple in Gerard's time. The author names seven principal varieties of the cultivated pear, viz.: the Catharine pear, the Jenning, the St. James, the Pear Royal, the Bergamot, the Quince pear, the Winter pear. He also describes six kinds of wild pear: the Great Choke pear, the Small Choke pear, the Wild Hedge pear, the Wild Crab pear, the Crow pear, &c.

Gerard describes twelve different species and varieties of

the cherry, including the common and the wild sorts. His remarks on this fruit will not meet the approbation of many persons in our day. He thinks "the best and principal cherries be those that are somewhat sour: those little sweet ones which be wild and soonest ripe be the worst; they contain bad juice, they very soon putrefy, and do engender ill blood." The "little sweet ones" must be the Bird cherry, called in England the Black-Grape cherry, because it bears its fruit in racemes, like the American "Rum cherry." The Grape cherry, however, is a mere shrub, while the American Black cherry is a tree of second-rate magnitude.

Treating of the peach, he says: "I will give you the names of the choice ones, such as are to be had of my friend Mr. Miller, of Old street, which are these: two sorts of Nutmeg peaches, the Queen's peach, the Newington peach, the Grand Carnation Peach, the Carnation peach, the Black peach, the Melocoton, the White, the Romane, the Alberza, the Island peach, the Peach du Troy. These are all good ones. He hath also that kind of peach which some call Nucipersica or Nectarines," of which he describes several kinds.

He enumerates no varieties of the quince, but simply describes the tree, and mentions that its "apples be ripe in the fall of the leaf and chiefly in October." He also gives receipts for preparing confections from the quince. The word *Marmalade*, is from the Spanish word *Marmellos*, signifying quinces.

Gerard describes five varieties, or rather species, of the plum, viz.: the Damson, the Mirobolan, the Almond plum, the Damascene plum, and the Bullace and Sloe. He says, "Plum trees grow in all known countries of the world; and thinks that varieties are produced by the different regions in which they grow. He makes no allusion to the diseases that, in our day, threaten the whole species with destruction. "I have," he says, "three score sorts in my garden, and all strange and rare: there be other places many more common; and yet yearly come to our hands others not before known."

He says: "There be divers sorts of strawberries; one red, another white; a third sort green; and likewise a wild strawberry, which is altogether barren of fruit." This last must

have been a *Potentilla*, not a strawberry. He adds: "Strawberries do grow upon hills and valleys, likewise in woods and other such places that be somewhat shadowy. They prosper well in gardens; the first (the red) everywhere, the other two more rare, and are not to be found save only in gardens."

It is worthy of remark that Gerard, and the majority of the old writers, when treating of fruits, speak very particularly of their medicinal qualities, and express great doubts of the healthfulness of freely using them. At the present time, no physician, except a quack, treats of them as medicines; and no intelligent man believes any kind of fruit unwholesome, except in that excess which would make every other aliment unwholesome.

OF CERTAIN ORNAMENTAL TREES, AND THE RESULTS OF SOME EXPERIMENTS IN HEAVY TRANSPLANTING.

BY GEORGE JAKES, WORCESTER, MASS.

WITH the hope of contributing something, though of but trifling importance, to the general fund of horticultural information, I venture to lay before the readers of your excellent Magazine some remarks upon a few of our most valuable deciduous shade trees, together with some account of a number of experiments in what may be called, considering the size of the subjects operated upon, heavy transplanting.

Of the numerous indigenes of our Northern forests, two only—the *Ulmus Americana* and the *Acer saccharinum*—seem to have taken precedence over all others for the decoration of streets and pleasure-grounds; for the result of an extended inquiry would probably show that the white (or weeping) elm, the sugar maple, together with the horsechestnut, are by far the most popular deciduous ornamental trees planted in New England. Others, however, of which there are several, are steadily gaining reputation, in proportion as they are becoming better known. These are—to specify a few of them—the English elm, the Scotch elm, the Silver maple, the Norway maple, the tulip, the red-flowering horse-

chestnut, etc. etc. Still a few more—not including the class of evergreens—might be added to those just named; but, so many are liable to be damaged or even entirely destroyed by insects, storms, droughts, severe frosts, &c., that it seems hardly desirable, on the present occasion, to extend the list.

Of those above introduced to the reader's notice, something occurs to be said in regard to each.

THE AMERICAN ELM.—This is easily transplanted, adapted to a great variety of soils, of rapid growth, comparatively exempt from the attacks of insects, and, of all large-sized trees growing in our climate, it is the most graceful, majestic, and beautiful. A fine example of what this monarch of our forests becomes in extreme old age, is afforded by "The Big Elm" on Boston Common, which was high and strong enough to do battle with the storm and whirlwind long before a white man had ever set foot on the shores of New England.

THE ENGLISH ELM.—Next to the oak, this enjoys the reputation of being the most magnificent tree of Great Britain. Perfectly hardy in the climate of our Eastern States, this elm, though smaller and more upright than the American, retains its leaves late in the autumn, and is, in every point of view, worthy of a place in the front rank.

THE SCOTCH ELM.—This, also called the Wych or Witch elm, is pronounced by Sir Thomas Dick to be "one of the noblest of park trees;" and unquestionably it may claim to be the finest of all the European species. For streets, unless of liberal width, this tree is too spreading; but wherever it has room to develop itself, it deservedly claims a conspicuous position among its deciduous companions of the avenue or the pleasure-ground.

THE MAPLES.—The *Sugar* variety is the best known, and well merits its popularity. The *Silver* maple, which is found wild, west of the Alleghanies, is a fine and beautiful tree, taking precedence over almost every other of the ornamental class, for its rapidity of growth. The *Norway* (*Acer platanoides*) is a European variety, and, while young, resembles the sycamore of the Eastern continent. With its large foliage, its dense shade, its cleanly habits, as for almost every other desirable quality, this seems to us to be one of our very finest

trees for streets and parks, or for the smallest enclosures of private residences. This maple needs but to be better known, in order to be appreciated as it so richly deserves.

THE HORSECHESTNUT.—This Asiatic foreigner seems to be perfectly comfortable in our climate, and not likely to be displaced by any “new-fangled notions.” The red-flowering variety—though slower growing and of considerably smaller size—is, while in bloom, most gorgeously beautiful. A long avenue of these, at Baden-Baden in Germany, as they appeared in all their summer glory, with long spikes of crimson flowers streaming like ruddy flames through their green foliage, remains to us as a dreamlike souvenir of a belt of the richest tropical scenery painted across a rugged Northern landscape.

THE TULIP.—The only possible thing to be urged against this, otherwise called the *Liriodendron* tree, is the necessity (unless the *frozen-ball* method be adopted) of transplanting it, while of quite small size, on account of the tender and almost vegetable character of its roots. But surely so trifling an objection ought not to weigh against a tree, which, for its stateliness and symmetry of growth, its gracefulness, its large and beautiful foliage, and its superb flowers, has perhaps no superior on the face of the earth.

Every one of the above-named trees may be highly recommended for general planting; but they are by no means *all* the fine trees which are adapted to our climate. Indeed, the white oak, the chestnut, and the hickories should certainly be added to the list, were it not for the extreme difficulty with which they submit to a change of locality. Without stopping, however, to advocate the claims of these or any other neglected trees, we can hardly refrain from saying a few words in favor of one of the species of our walnuts, especially as this tree figures prominently in some experiments in heavy transplanting which the reader will find related farther along in this article.

THE HICKORY.—Among what botanists style the indigenes of North America, the shellbark, (*Juglans squamosa*), one of the hickories, holds a high rank. This latter-named species is stately and symmetrical, and, even for ornamental

purposes, has fewer rivals than inferiors. Its wood, whether as fuel or as timber for some special uses, is unsurpassed by any other growing in the same latitude. Accidental varieties of the shellbark are also found, bearing fine large thin-shelled nuts well worthy of cultivation, being superior in flavor even to the world-renowned European (or English) walnuts. Shellbarks, indeed, are held in such repute as to form an article of commerce, four or five hundred bushels of them being annually registered among the exports of the United States. What may be some vague and remoter value of one of these trees, growing in the grounds of those who have children to frolic beneath its shade, and gather its fruit as a treasured contribution to the good cheer of wintry evenings, may be estimated best by those moralists who see, in the gleam of the patriot's sword, a reflection of those blessed associations, which, while they bind the human heart to the home of its childhood, inspire love of country, and become an inestimable defence alike against open hostility or skulking treason.

But to proceed to what is more practical. In the month of October, 1839, my father found, on a neighbor's farm, a shellbark hickory, having upon it a few specimens of large, thin-shelled, early-ripening nuts. The possibility of transplanting this tree to the grounds around his own house, suggested itself; and accordingly, a few weeks afterward, in November, the attempt was made. The subject of our experiment—some ten inches in diameter at the surface of the ground, and nearly forty feet high—was of course extremely heavy and unwieldy. We should hardly have succeeded in lifting it at all, but for the very convenient vicinity of three other still larger trees, to which we attached pulleys. Another circumstance, to which our experiment was especially indebted for its successful issue, was the fact that the hickory we were operating upon grew in a sort of enclosure, formed by three large rocks, which, confining the roots in a small basin-like space, enabled us to take up the monster plant with the radical portions essential to its vitality nearly entire. After considerable difficulty, the tree was securely fastened upon a large hay-wagon, the mass of roots resting on the hind axle, and the trunk slanting out, at an angle of about forty-

five degrees, over the heads of the hindermost of the two yoke of oxen, whose united strength was tasked in drawing it. Creaking and groaning beneath its burden, and occasionally saluted by a sneer from those looking on, the vehicle moved slowly along, a distance of over three miles, to the place of its destination. The tree was somewhat roughly lowered into the hole prepared for it, an operation which might have been much better performed by placing bed-screws (such as are employed for moving buildings) under the axle-trees, which would have enabled us to lower the wagon body with its load slowly to the ground, after having removed the wheels. The broken ends of the roots and their bruised parts having been carefully dressed, the new ornament of our grounds was properly righted up and secured in a perpendicular position, and almost in as good order as if it had been of only ordinary size. The next step was to support the huge plant by means of three long heavy poles set firmly in the ground and bound against its trunk, so as to resist the action of the winds. A much better mode of securing the tree, doubtless, would have been to place close around it, on the surface of the ground, two or three large stones, each as heavy as a yoke of oxen can draw. This hickory was lifted from the ground with but very little earth adhering to its roots, and the whole operation of moving it, being independent of any assistance from the action of the frost, was, excepting the mechanical appliances necessitated by the weight of such a large subject, the same as is usually practiced in autumn-transplanting. During the first season after removal the tree presented a feeble, sickly, and unpromising appearance; convalescence came with the second summer; and, two years later, a vigorous growth and dark glossy foliage rewarded us with gratifying evidences of the complete success of our experiment. Twelve or fourteen years from its transplantation, the tree ripened a fine crop of about half a bushel of nuts; and since that time it has continued healthy and productive.

In the summer of 1850, my father having sold his home-place, removed his buildings a few hundred feet to another beautiful site, which was unfortunately entirely destitute of trees of any kind. In the autumn of the same year, we de-

terminated to attempt to supply this deficiency by the introduction of a considerable number of trees of several species, and of a size sufficient to produce an immediate effect. Our manner of transplanting them was exclusively by what is described in the books as the *frozen-ball* method. With white pines, ten, fifteen, and even twenty feet high, our success was complete. Large hemlocks were nearly a failure. Norway and black spruces, and arbor-vitæ, which had been previously transplanted, suffered little or nothing under the operation, the largest being about fifteen feet high. Two elms and four shellbarks, all between thirty and forty feet in height, receiving a heavy mulching the first summer, presented, in their second year, all that could be desired of a healthy appearance. The united product of three of the shellbark trees, in 1861, was a full half bushel of such excellent nuts as we had a right to expect, for these trees had all been selected with reference to fruit which they had borne previously to their removal. One or two fine white beeches, and some apple and pear trees of large size, may be added to this list, and—but some years before—a moderately large peach tree, also, which ripened nearly a peck of fine fruit (the Snow variety) the season after its removal.

During the operation of moving our buildings, referred to above, it was found necessary either to cut down or remove a fine apple tree, with a trunk about four inches in diameter at the surface of the ground, and a head branching up about eight or nine feet high, and well proportioned. The tree, having on it at the time (June 19, 1850) a dozen or twenty specimens of the Danvers Sweeting, was considered too valuable to be sacrificed, and we at once set about transplanting it. Accordingly, a circular ditch, about two feet wide and deep, and about three feet from the trunk of the tree, was dug around it, and kept filled with water for several hours, until the central mass of clayey loam, in which the tree stood, was completely saturated. Our patient was next carefully turned down upon one side, sufficiently to place the hind end of a stone-boat under its roots, to which a very gratifying quantity of earth continued to adhere. The tree was thus removed, set out, and kept heavily watered through a thick

mulch for the remainder of the season. Some of the leaves fell, as did also all the fruit gradually and before maturity. In 1851, the tree ripened a few specimens of fruit, and still continuing to be as vigorous and productive as though it had never been disturbed; it is highly prized by the gentlemen who purchased of my father the land on which it stands.

One other experiment may be disposed of in a few words. Rearranging a portion of my garden, in the fall of 1859, I found it necessary to reset some thirty-five or forty dwarf pears. These trees were on quince, ten or twelve years from the graft, and all in a bearing state. The ground having been thoroughly trenched two and a half feet deep, and enriched, the trees were carefully transplanted about the first week in November. The ensuing summer over one third of these pears showed fruit, twenty-two fine Duchess on one, and nineteen very large Belle Lucrative on another, &c. &c. Three only of the whole number have died, and these appear to have been destroyed by the quince-borer, rather than by reason of their having been reset. The second year (1861) the crop of fruit was small, as everywhere in this region; but nearly all these trees make a vigorous growth of wood, and they may now be regarded as being perfectly established in their new location.

One other experiment it may be worth while to give an account of here, as being illustrative of the mode of transplanting recommended in the 70th page of this volume, by your English correspondent, Rev. Mr. Bréhaut.

Eight or ten years ago, I set out about eighty apple trees, mostly arrived at a bearing state. The location was on the broad flattish summit of a hill. The soil was, the first six inches, surface loam; the next two feet, yellow loam; and, beneath this, heavy clay. The trees were transplanted in the autumn, and were set *directly upon the grass*, as it was left after the hay-crop had been taken off, the sward remaining unbroken. The roots of every subject thus experimented upon were covered by about one horse-cart load of good loam, mostly decayed turf, placed around, so that, when the work was completed, each tree stood on its "own little mound," and even more elevated than your English correspondent

suggests. Five years after removal, seventy-one out of the eighty or eighty-five trees were in a fine healthy condition. For the first three or four years, the orchard seemed to have been slightly retarded in its growth by the too high position of the trees, and the death of two or three is partly attributable to the mode of transplanting. Still, the experiment may be regarded as having been tolerably successful; and, upon the whole, when it is desirable to locate an orchard on comparatively low ground, where drainage is difficult, and especially where the subsoil is a heavy clay, the practice may be safely recommended to any one who can afford to use a sufficient quantity of surface-loam—not less than a horse-cart load to a tree—so that the “little mound” shall be large enough to protect the roots. Under any less favorable circumstances, our ordinary New England manner of transplanting is preferable.

But to conclude. Should what is written above seem to be worthy of the space it will occupy in the pages of the *Magazine of Horticulture*, something further about Evergreen trees may form the subject of another communication.

CORDON TRAINING OF FRUIT TREES,

ADAPTED TO THE ORCHARD HOUSE AND OPEN-AIR CULTURE.

BY REV. T. COLLINS BREHAUT.

CORDON TRAINING—ITS ADVANTAGES AND USES.

CORDON training derives its name from its fanciful resemblance to a cord or chain. A certain number of leading branches are carried out, and on them spurs are developed, so that the branches look somewhat like twisted cables or chains. It is not an entirely new plan, but has the advantage of being based on well-known and valuable methods long in use. In the present case its value chiefly consists in its combinations, and modifications required by the peculiar character of the climate of England. In the case of in-door culture much more novelty was admissible, because in this instance

the dry and equable temperature aided powerfully in its success. Objections made to cordon training in the open air, which, however, are not based on experience, being generally made by persons who have never even seen the trees during one season, in orchard houses, fall at once to the ground.

But for an amateur to take up cordon training and to endeavor to practice it, irrespective of the exigencies of our rainy skies, and to expect results attainable in other dry and sunny localities, is simply absurd.

I have myself carefully studied the system, and followed it out on a fair scale for some years, both in the open air and in the orchard house. While, therefore, convinced of its value, I trust it will not be considered presumptuous in me to say, that I believe that an important portion of this peculiar system would prove a total failure unless it were carried out exactly as described in these pages. But as it is so simple that any one can understand its rules, there can be no reason why mistakes should occur, nor is the manual labor so great as to prevent even ladies from undertaking it. I offer my suggestions to amateurs with a certain confidence, since I have tried and rejected most of the systems which are, *at this day*, considered excellent in France. One form was quite unsuitable to the extreme dampness of our climate, which induces a too luxuriant growth in the autumn; while the want of proportionate sun-heat renders it impossible to have *well-ripened wood*,—and without this, what tree will ever bear?

Another form, more adapted to meet these difficulties, was far too complicated in its system of dis-budding,—which, by the bye, is a plan requiring much caution in its adoption, and is not very necessary at any time. It is true this last system produced a fair crop of fruit, but it required too much attention to make it generally valuable. Proceeding, therefore, on a new mode, which arose out of the cordon system itself, I gradually adopted it, and after two years' trial of this *new combination*, I do not hesitate to recommend it *as the best* which exists at the present day. A large and important portion of this system—the management of the spurs and the growths on them—is very similar to that recommended by

Mr. Rivers, in the chapter on "Summer Pinching." Some of the terms used in horticulture are so droll as to excite wonder at their use, but it would cause confusion to endeavor to introduce any new ones. But certainly "pinching spurs in the summer" seems no particular recommendation in gardening.

As was said before, cordon training has the immense advantage of being simple. There is no elaborate tying-in of summer shoots, as old as Shakspeare: "Tie up those dangling apricocks;" indeed few ties are required even in the winter. The forerights are preserved, which are of much value in increasing the amount of fruit. The spurs are compactly and regularly distributed, and are thus more easily sheltered from the weather, and more readily examined and pruned. No long straggling shoots are ever seen. The supply of new wood of the proper bearing age, and the regular distribution of the leaves, ensures a succession of crops. The fruit is all produced close to the main stems. All parts of the tree have a fair chance. The produce is doubled, since half of the intervals between the branches is only required. Twelve inches are sufficient for the parts where 18 or 24 inches were formerly required. The trees are as readily detached from the walls to clean them, as vines are from the wires, and from their simple forms no injury can happen to any portion. The trees are only lightly secured to the rods (which are safer, after all, than galvanized wires), and it is easy to clear off cobwebs and insects from the back of the trees, an advantage of incalculable value, as the gardener well knows. All these, and others, are the results of cordon training.

But one of the *chief* recommendations of the system is the *rapidity* with which a high wall is clothed with productive spurs. *In four years* a wall, twelve to fifteen feet high, can be covered with fruit-bearing wood, all disposed in regular, beautiful, and harmonious succession.

This will be obvious by a reference to the Frontispiece,* where the different years are indicated by their progress; and as a tree, planted at the angles shown, *must* grow fast, and

* The engraving illustrating this system will be given in the next number, with the chapter which describes the operation.

yet be fruitful, what can be desired more? What is shown in the Frontispiece is a representation of one kind of cordon, and that the very best,—the “diagonal,”—with three leaders on each tree. The trees are planted in the ground at thirty-six inches from their neighbors to right and left, there being thus twelve inches of interval between each leader. In France the single cordon,* with laterals of fourteen inches, succeeds well, but it would fail in England. The double cordon is better adapted; these two forms clothe a wall with amazing rapidity, and if suited for our climate would supersede all others. The triple cordon I have never seen but in my own gardens; with laterals in the old system it would not advance fast enough, which is one important condition in its use. A quadruple cordon would take so much time to complete as to make it less desirable; it might, however, suit very moist localities better. With spurs, as now recommended, the triple cordon unites most of the conditions required for success. It covers the wall rapidly, and bears well and regularly: nothing better can be said in its favor. Its form is also so regularly beautiful, that even casual observers must be struck with the harmony and grace of the whole tree. No gentleman likes to have his valuable walls covered with trees as unproductive as they are ungainly; but any one who has seen a *well-managed* cordon on the diagonal plan, will not fail to give it the palm as to beauty.

By means of light guiding rods the young wood creeps *as straight* as a walking stick, upwards, and *on this* depends much of the handsome appearance of the trees. So that were a wall of these trees drawn, each of them ascending with mathematical regularity, it would not be exaggerated: a moderate amount of skill and patience would easily effect it. The various forms of cordon training remain to be noticed. They are the diagonal, the best suited for a wall; for in-door or out-door culture it should always have three leaders. The vertical, useful for trees trained against the pillars of the orchard-house, where they bear admirably; they also answer well if planted in the borders. If for walls in the open air,

* An engraving of the single cordon will appear in a future number, to illustrate this mode of training the peach, now so popular in France.

then the number of leaders should not be less than five, or there would be danger of the trees producing too much wood. The spiral: round wires for trees in pots, or round the pillars of the orchard house, where they have a pretty effect. It will also suit large pear standards in the open ground, or in the borders of the house. Lastly, the horizontal—i. e. all fan-shaped, (palmette of the French,) or laterally developed trees; all standard trees in the open ground or within the house, and planted in the borders.

CORDON TRAINING IN PEACH TREES.—THE DIAGONAL CORDON.

“If any one tree has occupied the attention of cultivators more than another, it is surely the peach.” So says the editor of the *Gardener's Chronicle*; and so many have done so, that it may almost be asked if the matter be not exhausted. The article from which this is quoted proceeds to lay down three conditions as necessary to success in peach culture, which is what we are now considering. The first indispensable condition for success is, that the soil must be *well drained*; and secondly, that the wood must ripen *thoroughly*; and thirdly, that as the wood of the *first* and *third* year produces no fruit, it must be looked for only on the wood of the *second year*. I hope to be able to show satisfactorily that these requisites can best be obtained by cordon training, combined with attention to other important particulars.

The peach, like the pear, is a standard of perfection among fruit trees; but each requires a widely different treatment. The peach coming from a climate tropical in its summer heats, drier at most seasons than ours, and yet subject to extremely severe frosts, when transplanted to England is placed under very different conditions. These arise chiefly from the want of sun-heat at the necessary period; but above all, from the excessive moisture of spring and autumn. As to our frosts, these are not often injurious to the tree itself, but they affect the blossoms when setting. Nevertheless, precautions can be used in out-door culture which somewhat obviate this disadvantage; yet it is difficult to know how to ward off the drenching autumnal rains, which ruin all hopes of ripe wood. It is here that cultivation under glass is most valuable.

It is no wonder, then, if the tree should have been written about till the very name of peach becomes odious to readers of horticultural subjects; and it is not a matter of surprise, if even the ancients blundered amusingly when they wrote about this exotic. Thus we find Columella making the funniest mistakes; and Pliny (the Rivers of his day) setting him right, and re-establishing the fruit into popular favor. Nevertheless, even Pliny only knew of five varieties. By the 16th century some forty kinds were known and described; and, of these, the oldest and that most carefully depicted is the "Lucca peach," which is supposed, on good grounds, to be the "Late Admirable" of the present day, and the "Pêche Royale" of the French. (*Duhamel*.) The "Late Admirable" is not the same as "Bourdine" (which ripens later), as others assert. But this only shows how little is really known about the fruit common in the middle ages.

In the tropics the peach succeeds pretty well, that is, it grows finely; but there is little fruit on it. Vegetation is *too continual for the fruit-buds to form*. This is curious enough, as it is just the case, from excess of humidity, in our climate. Between the 30th and 43rd degrees of latitude, the care bestowed on or required by the peach is almost nothing, and beyond the 50th degree it declines to bear at all. Thus wrote M. Noisette; an excellent authority,—but, then, he knew nothing of orchard houses. How few Frenchmen of the present day really believe in our successful culture of fruit at all, I leave to continental travellers to declare. "They grow, it is true," said one of the learned men at Angers to me, "they grow, as my friend (quoting a well-known name) declared to us as we walked the streets of London together, but they never ripen." The eminent cultivator referred to had frequently visited England, and knows all our best nursery gardens too. Another, and certainly a clever authority, residing at Brussels, considers our system of pear culture as "disastrous," and ascribes it to ignorance of common principles; the trees round London, though numerous, being quite "unproductive."

The transition from this amusing prejudice on the part of our continental friends, to the opinions of the Chinese respect-

ing peaches, is not so abrupt as may appear at first sight. The ruddy and pointed peaches are considered, in China, to be symbols of long life. They are in consequence profusely used as ornaments on their walls, and even on their furniture. Porcelain peaches are appropriate presents on the New Year. The peach has also the valuable quality of being an antidote against evil or low spirits; but the brown peach, though beautiful, is the cause of sin and death.

Probably some allusion is here meant to the wide-spread tradition of Eve's offence; more especially, as one variety called "Yu" renders the eater thereof immortal. So much for oriental opinions. With respect to details in peach training, these have had the share of attention from many quarters. But before entering into them, I must quote Lindley's words respecting the formation of flower and of leaf-buds; which are so explanative, and, I hope, agree so completely with what follows, that it will be useful to record them here. "Physiologists know that whatever tends to cause a *rapid* diffusion of the sap and secretions of any plant, causes also the formation of leaf-buds instead of flower-buds; while an *accumulation* of these fluids produces flower-buds. In a leaf-bud the leaves are highly developed, and their axis has a *tendency to elongate* as soon as stimulated by heat and light. In a flower-bud the leaves are in an imperfect state, (which is called calyx, corolla, stamens and pistil) and the axis has *no tendency to elongate*. Hence a flower-bud is a contracted branch. It is, therefore, easy to be seen that so long as the fluids of a tree circulate rapidly, and *without interruption*, only leaf-buds (*i. e.* undeveloped branches) can be formed. But if the motion of the fluids be languid, and the parts *are formed slowly*, flower-buds, which are contracted by nature, and have no disposition to elongate, only will appear."

For these reasons, most sound as they are, the Diagonal Cordon, which is now to be described, appears the best adapted to unite the conditions of fertility with due attention to the necessity of extension. In other words, this cordon grows and bears well. As will be seen, the term "Diagonal" means leaders—one or more, but generally three—trained against walls at an angle of 65 degrees during the first year,

and at an angle of 45 degrees during the succeeding years. The reason why the trees are first planted at the angle of 65 degrees, is that otherwise the shoots on the upper side would grow faster than those on the lower, and that they would injuriously compete (by their vertical position), with the growth of the leading extremities, the growth of which it is sought by all means to encourage.

The position of 45 degrees, to which it is inclined as soon as the leading shoot has obtained the proper pre-eminence and strength, and is thus able to defend its rights—the position of 45 degrees is the most favorable to obtain *fruit and wood* above all inclinations at which any fruit trees can be placed. Therefore, as soon as the leader is strong and vigorous enough, the tree should be lowered to this angle, and, by means of light guiding rods, be made to ascend, at this angle, to the top of the wall. From being tied lightly, at every two or three inches, to the rod, it must grow perfectly straight.

CHINESE YAM, DIOSCOREA BATATAS.

BY WM COURTIS, MARBLEHEAD.

HAVING for four years planted and raised the yam, and, as I think, successfully, I have thought it might be the means of doing something for the great cause of agriculture to make my experience known to the public. I have therefore drawn up a simple statement for your perusal, and if you should think that it will be of any assistance to those who may plant this valuable esculent, you are at liberty to do as you please with it.

On the 17th April, 1860, I planted two rows of about forty feet each, of Chinese yams, and gathered them in November, 1861, having left them all in the ground through the winter of '61. The quantity harvested was a barrel and a half, the tubers weighing from one to four pounds each, averaging about 1½ lbs. each.

I had a trench dug two feet deep, covered at the bottom with six inches of barnyard manure; the earth was thrown

lightly over it and raised a foot, so that the soil was loose to the depth of three feet; a dibble was then used to make a hole a foot deep and a foot apart, and a piece of yam two inches long dropped into each hole, which was then filled up with a compost of wood ashes, super-phosphate of lime, and common soil, in equal parts. A frame was raised over them, by placing a bean pole near each hole, and laths fixed across them for the vines to run upon.

Nothing more was done to them except to keep them from weeds till they were gathered. They were very irregular in coming up; some appeared in four weeks, others in six weeks, and a few were two months in showing themselves, but they *all* finally came up; they grow very rapidly, many of them grew from 20 to 25 feet during the season; the blossom, which appeared about the middle of August, white, resembling that of the Madeira vine, and had a cinnamon fragrance. The foliage is similar to the English ivy, and is as beautiful as that vine for an ornament. It dies to the ground with the first severe frost, and begins to show itself again about the first of June or last of May.

There is less trouble in raising the yam than it requires for the potato, though the labor of digging them is much greater; they are so extremely delicate that the slightest touch bruises them, so that to dig them in perfection requires a trench near them as deep as that in which they were planted. They will keep, if not bruised, as long and better than the potato.

I have not decided as to the advantages arising from keeping them in the ground through the winter, as the tubers die in the ground, the neck, which is from 6 to 12 inches long, only surviving, and the new tuber growing from this neck, which is of a tougher nature; I am satisfied, however, that it is the only way to get large tubers, the plant being much more vigorous, after commencing to grow, but whether the weight of the crop two years old, or the two crops annually gathered, would be the heaviest, I am unable to say, though my belief is in favor of the former. I should not again plant them more than four inches deep, particularly if they are left in the ground over winter, as the new tubers springing from the bottom of the neck are in consequence deeper in the

ground and more difficult to harvest. The vine produces bulbs in the axil of the leaf, similar to the tiger lily, which forms the new plant; they are not of much value the first year, but after the plant has become vigorous by remaining in the ground over winter, the bulbs grow, many of them, as large as chestnuts. I have a pint which I gathered from the above vines. I think it is better to allow them to grow rather than to trim the vines down to make new plants. I have tried both plans.

It will require four years to produce a tuber from the bulb, of full mature size. I should in future put all the manure or fertilizer at the top of the ridge, *i. e.* within a foot of the surface.

I have no doubt that one hundred and fifty barrels can be easily produced to the acre, which, in my judgment, are worth at least double the price of potatoes.

For an ornamental vine it cannot, or has not, been equalled; its hardiness gives it great value.

We are highly gratified in placing before our readers so complete an experiment in the culture of this valuable esculent, which we predicted would become—not a substitute for the potato—but a valuable auxiliary to the culinary department, a real luxury to the lover of delicate vegetables. We notice, by the French journals, that it is becoming very popular in France, and large quantities already find their way to the market. The main objection urged against it has been its small size, but this appears to have been owing to defects in cultivation, for it has now been shown by Mr. Courtis that they may be easily grown to the weight of four pounds. We hope to see it redeemed from the neglect which it has received the last year or two.

Since Mr. Courtis's communication was received, Mr. C. Downing informs us that he has cultivated it largely the past year, and esteems it a most valuable product. His roots weighed ELEVEN POUNDS each, and he stated that a gentleman of his acquaintance had them FOURTEEN POUNDS each! In both instances the roots were left in the ground all winter. After this no fault can be found with the size of the roots.—ED.

POMOLOGICAL GOSSIP.

CHERRIES AND PERSIMMONS IN OHIO.—Our correspondent, Dr. Kirtland, whose labors in the improvement of the cherry have resulted in the production of many superior varieties, has also given his attention to the persimmon, and has raised some seedlings which are an improvement upon our native kinds. Few cultivators would hardly deem this a fact of sufficient importance to expend time and care in their production; but the efforts of Dr. Kirtland show that even a fruit so little known and slightly esteemed may become a desirable acquisition when subjected to the cultivator's skill. We copy Dr. Kirtland's remarks:—

“Our cherry trees have nearly recovered from the injurious impression of the winter six years since, and now are remarkably healthy, and are more thickly studded with fruit spurs and buds than ever before known. The most dangerous contingency to which they are subject on the south shore of Lake Erie is sleet, or incrustations of ice, followed by severe cold weather. They have been thus incrustated for several days in succession, and on three several occasions, during the present winter, yet have escaped injury in consequence of the weather continuing mild till the ice melted.

The fine varieties of Heart cherries evidently withstand severe trials in unfavorable localities and climate much better if propagated on Kentish or Morello stocks, with heads formed near the ground, than on Mazard stocks with long bodies. A partial shading improves their condition. Surrounding them with a clump of red cedar or hemlock bushes affords a favorable protection without impairing their vigor and fruitfulness.

My son-in-law, Charles Pease, is still carrying on the process of producing seedling cherries after my method, and is every year securing new and fine varieties.

The fruit of my seedling persimmons and of the Scotch medlar are now in perfection. They should be associated together. The rich sweet of the one contrasts very palatably with the subacid flavor of the other, and collectively they form a rather inviting dish of fruit at this season of the year.

The persimmon is perfectly hardy here, but whether it would bear your climate is questionable. It is found native at Beavertown, 30 miles from Pittsburg. My trees were raised from seeds planted in 1840. They began to bear fruit in seven years. This tree is diœcious, and at least three out of every four are barren or staminate. The fruits of no two are alike in size, form, flavor, and time of ripening—and they come into maturity, in succession, from the 20th of September to the 1st of March.

Greatly improved varieties will no doubt be produced by crossing and cultivation. The foliage is rich and beautiful; hence the tree is ornamental on a lawn.

Seeds should be planted where the trees are to stand permanently, as they are difficult to transplant.

Blight having destroyed most of my pears, I am now amusing myself in testing all the new varieties of the grape. Cleveland and Kelley's Island have furnished several which promise well, and I am happy to learn that your locality is doing the same.—Very truly yours, J. P. KIRTLAND.

OUR NATIVE GRAPES IN BALTIMORE.—An amateur cultivator in Baltimore sends us the following gossip respecting grapes and grape culture in that city, and we are highly pleased to receive such evidence of the excellence of the varieties mentioned, when subjected to just what we understand to be "generous culture," as suggested in our late article upon grapes. Mr. Kohler has shown himself to be a true lover of fine grapes; for in these days, to have the Clinton claimed among eatable varieties, indicates a perversion of taste almost unaccountable. Mr. Kohler, in describing it, shows a just appreciation of the qualities of a good grape, and instead of advocating the growth of the Clinton because it bears a good crop, at once places it in its proper rank,—a stock upon which to graft such truly delicious varieties as the Rebecca, Diana, and Delaware.

Mr. Kohler desires our opinion of the Tokalon: this we gave twenty-five years ago, in one of the early volumes of our Magazine. We then thought it a very excellent grape; but we could never raise it successfully in our climate, nor have we heard of many successful cultivators of this variety. It

appears liable to mildew and rot, and the vines are tender and liable to injury from the winter. What it may do in the more favorable climate of Baltimore, Mr. K. will soon be able to inform us; but we do not anticipate very valuable results.

Specimens of the Manhattan will be most acceptable; we have tasted the grape (inferior specimens) and thought it excellent, and an opportunity to try such specimens as Mr. Kohler raises would enable us to form a better opinion of its merits.

We need not say we are highly gratified to know that our estimate of the various grapes, mentioned in our December number, meets the approbation of one who is so well able to judge of its correctness. Since the commencement of our Magazine, twenty-seven years ago, we have endeavored to form a just estimate of every new fruit, and it has been a source of the highest satisfaction to know that our opinions have been corroborated by competent judges:—

“Mr. Brakenridge, my neighbor, furnished me kindly with the December number of your issue, and what I read there in reference to the different qualities of the new hardy grapes, has given me much faith in the editor’s judgment,—for I have most of those kinds mentioned as new and No. 1 now in my possession. Some have fruited last year, and some promise to fruit the ensuing season. Mr. H.’s expressions entirely correspond with my limited experience.

I have three strong Rebecca vines, grafted in May, 1860, on four-year old Clinton stocks, one of which has produced thirty-six strong fine bunches, the others fifteen and twelve bunches, (grafted by Mr. Brakenridge.) These three Rebecas have not suffered from mildew, as my other Rebecas have done in 1860, and their berries never shrivelled, though I left them until December, for I have found that a little frost much improves the quality of the Rebecca, and actually produces a very perceptible strawberry flavor. I found last season that stopping the Rebecca vines (on their own root) in July and early in August, *i. e.* by merely taking off the point of the shoots, produces larger and stronger leaves, and thereby I avoid mildew; besides, the Rebecca does not like a too hot and confined place.

The Diana, on the other hand, is very fine, and fully equal to the very finest Catawba I raise, when it has the benefit of a protected and even confined sunny and hot corner or place. It has never mildewed with me, never suffered from rot, bore always full crops, and particularly last year, having set a very evenly-distributed full crop, they looked the very picture of a bearing vine. Much heat will give the Diana a thin skin and fine taste.

I have also fruited the Manhattan last season, a very fine white greenish grape, amber where exposed to the sun; skin thin, dissolving pulp, taste sweet and aromatic, as early as Rebecca. I have grafted several Manhattan on four-year old Clinton stocks, (I have condemned Clinton, you will perceive), and all have grown such strong wood last season, that I expect, this fall, to be enabled to send you, Mr. Editor, some fine bunches of Manhattan, if acceptable. What is your opinion of Tokalon, which will certainly fruit with me the ensuing season? I have entered strongly upon Delaware, planted in 1860, a border 325 feet long.

You will perceive that the grape fever has seized me, like many other amateurs,—consequently, mind and pen will wander; yet I know you will kindly excuse my volatile effort, and believe me, very respectfully, your obt. servant, AUG. KOHLER, Baltimore, Jan., 1862.

MUSCAT HAMBURGH AND GOLDEN HAMBURGH GRAPES.—Will the Editor please to express his opinion, in the next issue, about the qualities of the Muscat Hamburgh and Golden Hamburgh grapes, and their success, as far as ascertained, in the cold grapery in this country? Some cultivators have given their opinion in cotemporary journals, but let us hear what Mr. Hovey's is, if you please.—Yours respectfully, AUG. KOHLER.

We willingly comply with the request of our correspondent, though we have already noticed these varieties in our last two volumes. We do not know that either of these sorts has been exhibited from the cold grapery, as they are yet too new to be found in a fruiting state in many collections. Under ordinary grape culture in the warm grapery, they have been exhibited before the Massachusetts Horticultural Society in

very fine condition the past year, by Mr. Turner of Randolph. The specimens were large, the berries fine size, the color perfect, and the quality delicious,—and they justly carried off the prize over very remarkable specimens of the older sorts. The Muscat Hamburg was of an intense blue black, and the Golden Hamburg of that rich amber hue which so well expresses its name. The crop, we learn from Mr. Jordan, Mr. Turner's gardener, was excellent for the age and size of the vines, and from the fact that they were quite as early as the Black Hamburg, we have no doubt they will be perfectly at home in the cold grapery, as much so as the Chasselas. English cultivators are united upon the merits of the Golden Hamburg; but they differ as regards the Muscat Hamburg, a few contending that it does not set well, while the majority deem it equal in this respect to the old Hamburg. Perhaps it may require a little more warmth at the period of setting than the cold house affords; but of this we shall know more at the end of the present year. It appears to merit all that has been said about it.

MEAD'S SEEDLING GRAPE.—This is the name given to a new grape, said to have originated in the garden of Mr. John Mead, Lowell, Mass., in 1847, and the original vine carried to Illinois in the fall of 1850. It is described as follows:—

“Evidently a seedling of Catawba, which it much resembles; bunch medium to large, somewhat loosely shouldered; berry medium, about the size of the Catawba, somewhat darker in color, round, red, with a fine bloom, juicy and very sweet, not as astringent as Catawba. The vine fine grower and healthy, not subject to rot, and an enormous bearer.”

Now we think that a new grape which would ripen in the climate of Lowell, and as good as Catawba, would have been known pretty well before it reached Illinois; and there is little or no doubt but it is the *DIANA*, under a new name. The description corresponds in every respect with the *Diana*, and the engraving of the bunch is a fac-simile of that variety. We need more information before considering it a new grape.

NEW EVERBEARING RASPBERRY.—Mr. Robert Buchanan presented a communication from Mr. A. L. Moore, of Newark, Ohio, dated Dec. 12, 1861, stating that Mr. H. L. Sprague

had a new seedling everbearing raspberry, which he thought would prove valuable. It commenced ripening June 20th, and continued till Nov. 20, 1861. Four separate beds of twelve plants each, and of different ages were taken, and the ripe fruit gathered for a period of four months. One hundred and fifty-four quarts were gathered, viz., forty in July, forty-five in August, thirty-one in September, and forty in October. This extraordinary yield, nearly five bushels from forty-eight plants, is vouched for by the writer, who is known as a highly respectable merchant of Cincinnati, and if true should entitle Mr. Sprague's Seedling to a high place among raspberries.—*Proceedings Cincinnati Horticultural Society, Dec. 1861.*

THE IOWA STRAWBERRY.—Mr. Prince considers this a valuable species for the propagation of new seedlings, coming, as it does, from a locality where the mercury falls to 30° below zero. Mr. Prince is now raising seedlings, using Iowa as one of the parents, and hopes to produce some valuable sorts.

WINTER SCENERY.

BY MRS. ISAAC CLEMENT, MECHANICVILLE, N. Y.

It is worth a ten-mile ride on a cold morning to enjoy the landscape, when the trees and shrubbery are covered with white frost, especially the red cedar. The west bank of the Hudson, from this place northward, is high and rocky, and thinly covered with red cedars; they look to me just as they did as far back as memory serves me; their growth is very slow, from the small quantity of soil they find among the slaty rocks, and the rapidity with which the rain runs off from the surface. There, too, are seen small elms, and clusters of alders, a shrub which we look for in wet ground, and now and then a gnarled specimen of scrubby oak.

What can be more beautiful than the red cedars as found growing there, when covered with a heavy white frost, with all their fantastic shapes brought out by their hoary covering; some are as flat-headed and drooping as though they were the

original of the picture of the weeping larch, figured in the horticultural journals of late ; others are as prim as if sheared by a line ; while others again are overgrown with wild grape vines, which pull their tops out of shape ; others, more exposed to the winds, have their limbs blown to one side, where they have buffeted the storms for many a year. The elm, too, loses none of its beauty from its associations, with its feathery spray glittering with frost in the morning sun, more beautiful even than when covered with leaves. The alders, with their clusters of seeds or aments, as seen in the distance, when covered with frost, look like rare specimens of silver work ; while the oaks, that are so thickly clothed with leaves in summer as to nearly hide their branches, now come in for a share of admiration ; when covered with frost one might readily suppose the blacksmith to have made them, with their square elbows and rigid branches. Even the sumach, with its crooked limbs so thinly covered with leaves in summer, is beautiful when covered with frost, with its panicles of persistent fruit, a few heads of which are seen above the oaks just for variety.

These forms are no less pleasing to the lover of natural scenery in summer and autumn, especially the cedars, when they exhibit a new growth with its different hues, and some of them loaded with berries ; standing as they do on the brink of the noble Hudson, with its rush of crystal waters hurrying on with no obstruction until it meets the ocean's wave.

In order to enjoy a diversified *frosty* scenery, we need not go into the piercing cold, provided we have plenty of deciduous shrubs in sight of our windows, each variety presenting a different growth, all the more perceptible when covered with frost. *Amorpha fruticosa*, with its slim branches tipped with bunches of persistent legumes ; *Weigelia rosea*, with its jointy, crowded shoots ; *Spiraea Douglasii*, with its straight, upright limbs, and persistent fruit ; the purple fringe, with its crooked branches ; the *althæa*, with its prim, upright growth, decked in white as if for some special occasion ; and many others might be named, each very different in growth from its neighbor.

PERPETUAL OR TREE CARNATIONS.

FROM THE GARDENERS' CHRONICLE.

THE carnation is a favorite flower. Its beauty, and above all its fragrance, commend it to all, and in some one of its many allied varieties—the picotee, the clove, or common border pink—it has always found a place in the garden, where alone it has seemed to be at home, refusing to dispense its bounties during the winter, under ordinary treatment.

But the skill of the gardener has of late years overcome the obstacles to success. A race of monthly, perpetual, or Tree carnations, as they are variously termed, has been produced by the continental cultivators, which bloom as freely during the whole winter as the freest-flowering greenhouse plant,—a continued display of superb blossoms from November to May.

These carnations are now familiar to most of our cultivators, and even some very valuable seedlings have already been produced; and it only requires the skill of our amateurs to be devoted to their improvement to supply our gardens with as beautiful varieties as can be imported from Europe.

But like many other free-blooming and easily-cultivated plants, the attractiveness of these carnations, during winter, is greatly enhanced by the right kind of treatment. Bloom they will under the most neglected management, but fine large specimens, profusely covered with blossoms, can only be obtained by some knowledge of their habit of growth, and a due preparation of the plants to develop their valuable qualities,—for a continuous bloom is scarcely expected. Like many other plants they require a period of repose and growth to be followed with a greater abundance of bloom.

A class of plants so valuable for winter decoration is deserving of every attention, and the following hints on their treatment may materially aid the cultivator in obtaining superior specimens. We add a list of a dozen free blooming and fine varieties:—

Boule de Neige, white, occasionally tinted with pink.

Cerise perpetuale, cherry pink, very fine.

Coquette, white, striped with scarlet.

Henrietta, blush, striped with dark crimson, very fine.

Inimitable, white, fringed with purple.

Le Furet, white, edged and picoteed with violet.

La Grenadier, scarlet, large and very brilliant.

Mademoiselle Georges, large, rich deep rose.

Madame Lucy, blush, striped with purple.

Marginata, white, deeply margined with rose.

Marceau, fine deep rosy pink.

Souvenir d'un Ami, blush, striped with deep purple.

There are several newer varieties, but these we have proved, out of a number both new and old, to be admirable kinds for any collection.—ED.

Carnations in winter? Does not the very name of Clove Gillyflower or Julyflower, which belongs to the plant, negative such a notion? To such questions we can only reply that carnations in winter, and carnations of very good quality too, are amongst the comparatively modern improvements in floriculture, which, like the recently-introduced Bouquet dahlias and many other favorites now within our reach, we owe to the intelligent skill of far-seeing florists, who, having detected in their seed-beds some novel though perhaps but slightly varied form, bearing indications of a new and desirable feature, have followed up the hint until they have been able to bring out some old favorite with a new face.

And yet in respect to the Tree carnations, which are those that yield winter flowers, the hint was given many years ago, so that we can only speak of the result as "comparatively modern." The race however seems to have died out amongst us for many years, and to have been only again revived at a very recent period. Some forty years ago, it seems, the first variety of Tree carnation, one with crimson flowers, made its way into our gardens. A few years later this was supplemented by some distinct forms obtained by the Belgian florists, and then comes a pause; for the varieties thus obtained seem to have been either lost, or lost sight of here, and nothing came of their introduction. On the Continent, however, in the south of France and in Belgium, they appear

to have been kept in view by at least some few cultivators, who have of late years given special attention to their increase and improvement; and the result is that we have now in cultivation from these sources a considerable number of varieties—upwards of eighty are named in Messrs. Henderson & Son's last published list of them—most of which are flowers of considerable beauty, and some of the more recent approach very nearly in merit to the choice summer-flowering varieties so much prized by our own florists. About this time last year the growers named above exhibited a collection of these winter-flowering Tree carnations at one of the meetings of the Royal Horticultural Society, and the merit of the varieties, as well as the utility of the group, was at that time marked by the award of a special certificate.

This race of Tree carnations, which includes Tree picotees, may indeed be said to be invaluable for pot culture for decorative purposes and for winter bouquets of the higher class, the flowers being in winter as fresh and sweet as those of the summer season. And herein lies their chief value, for they supplement the comparatively limited materials available for the forcing-house in winter with representatives of one of the most favorite of the flowers of our mid-summertide.

Those who are not familiar with this race of varieties—"perpetual-flowered" as it is sometimes called, from its habit of producing its flower stems at varying successional periods—may be informed that the short stocky leaf-shoots, which in the usual forms of carnation and picotee remain in a dwarfed and as it were dormant condition during a considerable portion of the year, are wanting in the varieties to which we now refer, the habit of which differs in this respect that the young leafy shoots once formed go on continuously to grow and lengthen out until they develop their flower buds. It is this habit which adapts them so perfectly for the production of autumnal and winter blossoms. Hence, too, one leading feature in their management, when winter flowers are the object, consists in shortening back in the spring and early summer months all the taller and more elongated of the shoots then formed, so that a fresh growth may at that season be induced; the branches which are thus developed through-

out the summer and autumn being those that furnish the required winter blossoms. The elongated shoots present on the plants in spring would, if left to grow on, develop blossoms in the course of the summer. On the other hand, the vigorous young shoots made during the months of summer continue to grow on through the autumn, and furnish winter flowers. This renders it necessary, if a succession of flowers at different seasons is required, that there should be a succession of plants under treatment—forwarded or retarded according to the period at which the flowers are required.

Some of the principal features of treatment with the view to the production of the flowers during the winter may be here briefly sketched out. Commencing with the time when the blossoms of one season are just past, which will be very early in the year, the first thing to be done is to cut away the old flowering stems, which are to be removed quite back to the leaf growth at the base of the plant, however low down this may be. The object is to ensure a crop of dwarf, vigorous young shoots from as near the base of the stem as possible. The plants are to be put into a dry, cool pit, well ventilated, and freely exposed to light, protecting them from severe frost, as occasion may require, and repotting or top-dressing them as they may need, after growth has recommenced. So they may go on for a while. By and by, when the severe spring frosts are past, they are to be planted out in prepared beds in the open garden. The chief requisites to their successful growth in this situation are, a dry subsoil, say to the depth of at least a foot and a half; a well-pulverized and porous fertile soil, enriched by the plentiful incorporation of rich leaf-mould or decayed cow manure; and a situation where the plants will be fully exposed to sun and air. If the beds are so arranged and planted as to admit of being covered by a portable frame to furnish shelter from heavy rains, so much the better; if not, the evils of excess of moisture on the soil must be avoided by some other means, amongst which the frequent stirring of the surface, especially after rain, is one of the most important. The growth thus obtained by planting out in open beds, is ordinarily much more vigorous than that which can be obtained under pot-culture.

By the middle or end of September those plants which have acquired sufficient strength and vigor to produce flowers, should be carefully lifted with the earth about their roots, and potted into pots of convenient size; after which they are to be sheltered for two or three weeks in a close greenhouse or pit, where they will be kept rather close, occasional sprinklings of water and moderate ventilation, together when requisite, with a slight shade from strong sun for a few hours about mid-day, being given them. In a short time it will be seen by the plump and fresh appearance of the stems, leaves, and buds that root growth has been reëstablished, and after this the further object of protecting the plants under glass is solely that of preserving and assisting in the maturation and expansion of the flower buds. The forwardest of the plants may from time to time be removed to a warm house, with a genial temperature of from 50° to 60°, where they will gradually perfect their blossoms.

It is to be borne in mind that these plants for blooming are not to be lifted from the beds in which their growth has been made until the flower buds are formed and begin to swell, which should be the case by the time we have indicated, or shortly thereafter. If by that time there is no indication of flower buds, the growth has not been sufficiently vigorous for their development, and nothing remains but to leave the plants under conditions favorable to their health until the following spring, when the same cultural process must be renewed. In favorable soils and situations—that is, in airy situations, where the soil is porous and without excess of moisture—they may be left in the beds where they have grown through the summer, but if there is risk of injury from excessive or confined moisture, it is better to pot them and store them in dry ventilated pits till the return of spring.

The varieties of this tree form of the carnation now include self-colored flowers of various hues, such as crimson, scarlet, white, and yellow, and others with white grounds flaked with crimson, scarlet, or purple, some having markings of more than one color, like the bizarres of the florists; whilst of the Picotee race, those in which the color is disposed around the edge of the petals, there are primrose, yellow, orange-yellow,

fawn-colored, and pale, slate-colored grounds, margined with lilac rose or scarlet. There are, too, (we must confess it) varieties which in their own individual forms blend the markings proper to the picotee and the carnation; but we may in charity hope, since all such flowers as these are regarded as mere decorative objects, that such double-faced behaviour, reprehensible though it may be, will yet be judged leniently by the floral critics in consideration of other good qualities they possess.

OUR HARDY HERBACEOUS PLANTS.

BY THE EDITOR.

THE Ranunculaceæ embrace a large number of very beautiful garden plants, among which are the *Adonis*, *Ranunculus*, *Troillius*, *Clematis*, &c. &c. They are mostly natives of Europe, though our own country and Northern Asia afford several genera and species. A French writer, in speaking of the Ranunculaceæ, says, "that if we pass in review the numerous genera of this family we shall notice that nearly all furnish our gardens a rich contingent of species, generally endowed with flowers of remarkable beauty, whether for the bright color of their flowers, for their beautiful foliage, or for their neat habit. Ordinarily they combine all the three qualities. To their ornamental character they often join the valuable quality of furnishing their flowers at all seasons, even during the winter." Among this family, one of the most ornamental, not only on account of the beauty of its flowers but their early appearance in April, is the *Adonis vernalis*, the subject of our notice.

ADONIS VERNALIS.

The *Adonis* (FIG. 3) is the only perennial species of the genus. It is a native of the north of England, in valleys, and of the south, on sunny parts of mountains. It has long been introduced to our gardens, but is rarely seen, except in the choice collections of amateur cultivators. It well deserves a place, however, in every garden, not only on account of the

brilliancy of its large yellow flowers, but for their earliness, which appear immediately after the frost leaves the ground, forming beautiful tufts of foliage, and producing a profusion of blossoms when there are few other flowers to cheer the advent of early spring. Our engraving represents the size of the flower, and the neat foliage of the plant.



3. *ADONIS VERNALIS.*

Its cultivation is very simple. The roots are tuberous, and they should be divided and replanted in the autumn. It does not require any particular soil, but flourishes well under ordinary garden culture, in a situation exposed to the sun. It grows about six inches high. It may be also raised from seed, which should be sown as soon as gathered, as they lie in the soil a long time before they vegetate. It should find a place in every collection of hardy plants.

General Notices.

MUSCAT HAMBURGH GRAPE.—To the evidence already educed in favor of this grape, I may add that I purchased one in the autumn of 1860; I cut it down and grew it this last summer along with various other sorts of vines. For pot-culture I considered it quite useless, as it produced a very thin weakly cane compared with the other sorts grown in the same place. I however thought that I would see what it would come to. I placed it in a stove on the 3d of December last, with 18 other vines in pots, and to my surprise the Black Hamburgh and Royal Muscadines did not break at all well. But the Muscat Hamburgh broke beautifully, producing two large bunches to every break; thus covering the little vine with 18 splendid bunches, while at the same time the plant looked healthy and strong. I am therefore of opinion that this variety will never fail to be a good bearer.—(*Gard. Chron.*)

INDOOR GARDENING.—As this is at present so much patronized, and as the taste for having our rooms ornamented with plants is so much extended of late, I must say a word or two on the plan I adopt, and which affords me the gratification of having a constant supply of flowers from December until the genial spring ushers in the many welcome plants and shrubs which furnish our vases with cut flowers. At this moment I have my rooms decorated with some very fine specimens of hyacinths, tulips, and lily of the valley, which at this dull season are much admired by all who see them. I have a very small greenhouse heated by a stove, and into this I bring the pots containing the bulbs or other plants in succession; the rear of my house is in a northern aspect, so that in winter we seldom have the benefit of the rays of the sun. In October I obtained the bulbs, &c., and had them potted in compost and then plunged into a bed and covered with coal ashes and cinders. I let them remain under earth for about five weeks and then placed them in a cool frame, and after a short time I took them into the greenhouse, where they very soon began to show signs of bloom. On the 22d of last month I had a very fine box of lily of the valley in full blossom in the drawing-room. I quite agree with my namesake "E. A. M." "that a little more or less water, air, and light are just the very things upon which depend the difference between beautiful healthy flowers, or poor, scraggy, ill-conditioned plants;" but I don't think that any amount of care will afford the same style of plants or flowers grown in a room as you have if you possess the advantage of plenty of light, air, and a nice growing atmosphere. Every one cannot indulge in a miniature stove, but to those really caring to have a supply of flowers for their rooms early in the season the advantage of a greenhouse heated by a stove is decidedly far better than any amount of care one can bestow in a sitting-room. The great desideratum is to preserve the air cells or lungs of the plants free from dust or smoke, &c., and in a greenhouse you can give them a shower-

bath with a syringe every morning, which effects this object. In a sitting-room this would not be possible, nor could we often afford sufficient space for a plant case. Certainly there are many persons who could not devote sufficient time or means to the care or erection of a greenhouse, and in this instance the plant-case must be useful; but I should say that one which would contain as many plants as are described by "E. A. M." would be nearly as large as a greenhouse of a moderate size.—(*Gard. Chron.*)

EUCCHARIS AMAZONICA is cultivated successfully at Kew, where, in the Victoria House, its large snow-white blossoms and ample deep-green leaves had a fine effect. This is a plant which many fail to flower, owing, probably, to not sufficiently encouraging its growth during the summer months. When it has done flowering it should be allowed a period of rest, then let it be repotted in good rich soil; when fairly started grow it freely, and no fears need be entertained that it will not blossom satisfactorily. This is the kind of treatment which at Kew has been found to answer perfectly, each spike producing from four to six blooms, every one of which is as large as a five-shilling piece.—(*Gard. Chron.*)

THE DARWINIAN THEORY.—Mr. Page, in a work recently published, thus disposes of the Darwinian facts and inferences:—No doubt certain plants and animals are endowed with a certain amount of elasticity, so as to adapt themselves to minor changes of external conditions; and acting upon this elasticity *man has been enabled* to produce all the varieties of cultivated fruit and grains and domesticated animals. This limit of variation, however, is soon reached; the species is never affected, and the varieties can only be maintained by a continuation of the artificial stimulus. In this case *man presents himself as a sub-creator*, deputed with a power of prescient design otherwise unknown in creation; and to argue from his operations as Mr. Darwin has done, to those occurring in mere physical nature, is altogether to misinterpret the functions that intellect and reason were destined to subserve. As we have no other power in nature akin to the human intellect, so we are not entitled, in the spirit of induction, to argue from the results produced by that intellect to the operations of the unreasoning material agencies of nature. [This accords with the views we advanced in a late article, and counteracts Dr. Lindley's assumption that gardeners "exert no influence whatever," that "they alter nothing, make no variety even, &c."]—(*Gard. Chron.*)

PROPAGATING AGAPANTHUS.—The last week in April, or early in May, is the best time to divide *Agapanthus* for increase, and there is no other way of doing it than cutting the roots—that is to say some hundreds of coils of the finest looking roots must be cut right through up and down, and sideways of the ball, before it is practicable to reach where the different branches of an old plant join together in order to separate them. The reason is this,—the feeders are so strong and numerous in the *Agapanthus*, that by the time it is too old for blooming strongly, the soil is all but gone, and the ball is made out of the roots which have interlaced so that no pa-

tience or ingenuity can separate them without cutting. Even if the ball was washed by pipe and hose, till there was no particle of soil left among the roots, it would take a week or ten days to undo the roots without breaking them.—(Col. Gard.)

Societies.

CINCINNATI HORTICULTURAL.

At a late meeting the following officers were elected for the year:—

President, Thos. H. Johnston.

Vice Presidents, Wm. Heard, Wm. Orange, P. S. Bush.

Corresponding Secretary, E. P. Cranch.

Recording Secretary, Geo. L. Frankenstein.

Treasurer, Robt. Clarke.

Librarian, Wm. Addis.

Council, Wm. Addis, John Jackson, Thos. Knot, and J. E. Moltier.

BROOKLYN (N. Y.) HORTICULTURAL.

The following are the officers for 1862:—

President, John W. Degrauw.

Vice Presidents, S. J. Eastman, J. A. Wallace, Lyman Burnam, R. W. Ropes, and Henry M. Bearnes.

Treasurer, J. W. Degrauw.

Corresponding Secretary, C. B. Miller.

Recording Secretary, J. C. Martin.

The regular business meetings are held on the first Tuesday of each month, at 7½, P. M.

ILLINOIS STATE HORTICULTURAL.

The Annual Meeting was recently held at the Tremont House, in Chicago. After the conclusion of business the following officers were elected:—

President, C. B. Galusha, of Kendall Co.

Vice Presidents, 1st District, C. D. Bragdon of Cook; 2d, Robt. Douglas of Lake; 3d, Chas. H. Rasentiel of Stevenson; 4th, J. H. Stuart of Adams; 5th, A. Bryant, Jr., of Bureau; 6th, J. F. Nash of La Salle; 7th, M. L. Dunlap of Champlagn; 8th, K. H. Fell of McLean; 9th, N. Overman of Fulton; 10th, J. Huggens of Macoupin; 11th, Jos. E. Starr of Madison; 12th, G. H. Baker of Union.

Corresponding Secretary, C. T. Chase of Cook Co.

Recording Secretary, W. C. Flag of Madison Co.

Assistant Rec. Secretary, J. S. Little of Lee Co.

Treasurer, S. G. Minkler of Kendall Co.

PENNSYLVANIA HORTICULTURAL.

This old society is about being brought into more active co-operation. The society has taken the large second story front room on the corner of

Broad and Walnut Streets, which will be fitted up for weekly meetings, and such arrangements made for the coming year as to render the weekly gatherings the most attractive in the city. The committee recommended that the room and library be open every Tuesday throughout the year.

Massachusetts Horticultural Society.

Saturday, Jan. 4, 1862.—The stated quarterly meeting of the Society was held to-day,—the President in the chair.

The President then proceeded to address the Society, in some appropriate remarks, referring to the state of the country, and its effects upon horticultural science.

The Finance Committee were added to the Executive Committee to aid in securing a location for a new Hall.

The amount of \$3200, appropriated for prizes for 1862, was unanimously confirmed.

M. P. Wilder and Jos. Stickney and the Fruit Committee were authorized to arrange in regard to the proper period for the exhibition of apples for the prizes of the French Fund.

The Committee appointed for that object reported that it was expedient to change the days of exhibition from Saturday to Wednesday. The report was not accepted.

C. M. Hovey, from the Committee, reported the names of the following gentlemen as a Committee of Arrangements for the Annual Exhibition; and they were unanimously elected:—P. B. Hovey, J. S. Cabot, J. F. C. Hyde, E. S. Rand, Jr., D. T. Curtis, W. C. Strong, W. J. Underwood, E. A. Story, A. C. Bowditch, C. H. B. Breck, P. Barnes, F. L. Winship, and R. M'Cleary Copeland.

The sum of \$400 was appropriated to the Committee.

On motion of M. P. Wilder, the Executive Committee were authorized to make suitable arrangements for the reception of the Pomological Society, at its next meeting in Boston in September.

On motion of C. M. Hovey, it was voted to postpone the filling of any vacancies in the offices of the Society till the regular annual election.

The Executive Committee reported the List of Premiums offered for 1863, with their approval of the same.

John Tolman, Sumner Doane and Wm. Wallis were elected members.

Adjourned one week to Jan. 11.

Jan. 11.—Adjourned meeting, the President in the chair.

The Committee of Publication presented the published Report of the Proceedings of the Society.

The Committee of Arrangements reported that the Annual Exhibition should be held on the 16, 17, 18 and 19 of September next.

Adjourned three weeks to Feb. 1.

Horticultural Operations

FOR MARCH.

FRUIT DEPARTMENT.

THE month of February has been cool and stormy, with much snow and but few warm days. The snow now covers the ground, throughout the North and East, to the depth of fifteen to thirty inches.

GRAPE VINES in the early grapery will now be ripening their crop; and will need little more attention than stopping the laterals, and maintaining a proper temperature. Vines in the greenhouse and ordinary grapery will begin to break, and will require some care: syringe freely for a week or two, and do not force too much until all the eyes are well started; then tie up to the trellis and air more freely as the season advances. Vines in pots, now in fruit, should be liberally watered, and new vines may be brought in for a succession. Vines may be grafted now, and cuttings put in for raising a young stock.

PEACH TREES, in pots, may now be brought into the grapery or greenhouse for an early crop.

ORCHARD HOUSES should be well aired to prevent an early growth.

ROOT GRAFTING may be continued.

SCIONS of fruit trees may now be cut, and preserved in sand or earth in a cool cellar.

GRAFTING may be done this month, commencing with cherries.

STRAWBERRIES, now ripening their fruit or coming into bloom, should have an abundance of air, and a situation near the glass.

FRUIT TREES, of all kinds, may be pruned towards the close of the month, and the stems washed with whale-oil soap for the destruction of insects.

FLOWER DEPARTMENT.

The continued cloudy and stormy weather of last month, though not so cool as to require heavy fires, has prevented that vigorous and stocky growth which direct sunlight can only give: opportunity should be taken, on the approach of better weather, to air freely to make up for this. Continue now to repot all plants which require it, and get in cuttings and sow seeds of everything wanted for the summer decoration of the garden.

AZALEAS will now be prominent objects of beauty, and continue, with proper management, to be the greatest ornaments of the house until June. Plants kept in the coolest part of the house may be brought forward successively into a warmer temperature. Water liberally while in flower, and a slight shade from the hot sun will prolong their beauty. Plants done blooming should now be pruned into shape. Young stock may be repotted.

CAMELLIAS will now begin to push their shoots, and should have good attention, syringing every fine day. Prune old plants into shape. Shade from the hot sun. Young stock may yet be repotted.

PERLARGONIUMS will be growing rapidly now; give an abundance of air, and tie out the shoots of all specimen plants so as to prevent a weak growth. Water rather more liberally and fumigate if the green fly appears. Late cuttings may be potted, or shifted into larger pots.

CINERARIAS will require attention. Water carefully, tie out the flowering shoots, and fumigate often.

CALADIUMS AND **BEGONIAS** may be divided and potted, and growing plants shifted into larger pots.

HEATHS AND **EPACRIS** may now be propagated; young stock may be shifted into larger pots.

CALCEOLARIAS should be repotted; keep near the glass.

LANTANAS for early bloom should now be shifted into larger pots.

STOCKS, **PANSIES** and other **ANNUALS**, raised from seeds, should be potted off, and as soon as well established removed to a cool hotbed or frame.

JAPAN LILIES may have another shift this month.

PETUNIAS, **VERBENAS**, and other bedding plants, for very early bloom, should be encouraged by a shift into larger pots.

FERNS of many kinds should be repotted.

ACACIAS done blooming should be pruned into shape.

ROSES should be shifted into larger pots.

CHRYSANTHEMUMS should be propagated.

OXALISES done blooming should be sparingly watered.

DAHLIAS may be started into growth for early blooming.

CHINESE PRIMROSES in small pots may be shifted.

LILIUM GIGANTEUM should be repotted.

CONTINUE TO PROPAGATE *Salvias*, *Heliotropes*, *Cupheas*, *Verbenas*, and other bedding stock.

ORANGE TREES may be grafted.

RHODODENDRON SEEDS may be planted.

VEGETABLE DEPARTMENT.

If our directions of last month have been attended to, the hotbed will now be ready for all kinds of seeds or plants. Where there is much stock new beds should now be made to continue the growth of many things after the heat of the old ones is exhausted.

TOMATOES now well advanced should be potted off. Sow seeds for a succession.

CUCUMBERS may now be hilled out, placing the earth in the centre of each light, and turning out the plants carefully in the centre of each hill. Maintain a good temperature by lining the bed with fresh manure.

SEEDS of Melons and Cucumbers may be sown for planting out in the open ground.

PURPLE EGG PLANTS already up should be potted off.

CABBAGE, **CAULIFLOWER**, **BROCCOLI**, **LETTUCE**, and all other seeds should be planted.

PROTECT the bed with a good covering of mats during cold nights, and air freely in warm sunny days.

THE PRODUCTION OF NEW PLANTS.

THE production of new plants by fertilization has, within the last twenty-five years, become a subject of the deepest interest, and attained an importance hitherto unappreciated by cultivators. Through the labors of amateurs and practical men our collections have been enriched in an eminent degree, and the character of some families of plants very materially changed and improved. The English, the French, and the German cultivators have produced numerous beautiful plants, but the French have achieved the greatest results, and have given us the most unique if not the finest additions to our gardens. Our own cultivators have not been neglectful of the aid of fertilization in producing new plants; and though but few have engaged in the practice, the results have equalled, if they have not surpassed, in some instances the most successful efforts of foreign cultivators.

Notwithstanding so much interest has been manifested in the subject, and so much accomplished, very little has been written by our own cultivators upon the production of plants by fertilization; and the means by which great changes have been produced, which are so important as a guide to future experiments, remain unknown, save to the skilful cultivators who have labored so long and unremittingly to attain the object in view. It is time more was known in relation to fertilization, and we hope that in the future both amateurs and practical men will communicate more freely the details of their experience, and the method by which they have been enabled to accomplish so much.

In one of the early volumes of our Magazine, (Vol. III., p. 97), we reviewed the progress of hybridization and cross breeding, both abroad and at home, and its condition at that period. But in the twenty-five years which have now elapsed vast changes have taken place, and entirely new features have been given to some of our most popular plants. Very few experiments had then been attempted by American culti-

vators, and these were duly noticed, and our article was therefore not only the record of progress to that time, but a detail of the method of practice, with some suggestions in regard to the improvement of certain classes of plants. It is a source of gratification to know that from those suggestions many cultivators began the production of new plants, and renewed interest was manifested in the general subject of hybridization.

It is proper, therefore, that we should put upon record at this time some of the achievements of our own cultivators during this twenty-five years, that the progress which has been made may incite to fresh endeavors in the same direction, for it is to this source we must look for new objects of interest; actual discoveries in nature being of rare occurrence, especially from the temperate regions. Henceforth the cultivator is to be the creator of new forms, and our gardens will be enriched less by the introduction of new species than by the combination of those we already have.

Looking back to the period we have already mentioned, we find the only plants which had then occupied the especial attention of American cultivators was the Camellia; our collections of which, though meagre compared with the present day, contained some very handsome seedlings, produced mainly by Messrs. Floy and Harrison of New York. But the varieties produced by these growers were soon surpassed by young and zealous cultivators of this magnificent plant. Col. Wilder and Messrs. Hovey of Boston, Messrs. Buist and McKenzie of Philadelphia, Messrs. Feast and Kurtz of Baltimore, and Messrs. Becar and Boll of New York, raised the standard so high, that even the most skilful florists of Europe have been unable to reach it.

The Chinese Azalea, then limited in the number of varieties, was taken in hand, and though with less success than the camellia, some of our American seedlings equal the best European varieties. It was not until the later species, variegata and Gledstanesii, were introduced from China, that important changes were made here or in Europe.

The Rhododendron and Hardy Azalea, the finest of all our hardy shrubs,—the glory of the European gardens,—the

almost unknown plant in American collections, has received but little attention, and but limited acquisitions. We are immensely behind our transatlantic friends with our own native stock. Indeed, we must first cultivate the well known kinds before it can be expected that we should add improved varieties. Still, in the azalea we have accomplished a great deal; and our own seedlings will many of them bear a good comparison with the English and Belgian sorts. We must here renew our advice to every lover of beautiful shrubs to add these splendid shrubs to their gardens. Planted in masses or even as single specimens in properly prepared places, they afford a magnificent display of flowers and foliage. By hybridization, very superb varieties have been raised by the English and Belgian cultivators, and it but needs that we should give the same attention to such fine plants, to secure varieties equal to any yet produced.

The Pæony, both tree and herbaceous, has received a fine accession from American cultivators, but the number is not large, and but few amateurs have engaged in the work of improvement: so far these acquisitions have not come up to the latest foreign varieties. Yet there is no reason to suppose we may not, with careful breeding and the use of the best material, be as successful in this as in other plants. Seedlings, to possess a real value, should be distinct in their character, and those who attempt their growth should follow the example of M. Parmentier, the great Belgian improver of the pæony, who turned his attention to the production of deep colored flowers, which were greatly wanted, the lighter colors being already abundant. He succeeded in obtaining a large number of deep violet and purple-tinted seedlings, remarkably double, which have given an entire new feature to this magnificent garden ornament.

The Pelargonium, to which more attention has been directed by English cultivators and latterly by the French than any other flower—preëminently beautiful as it is—has found but few enthusiastic admirers or zealous improvers in this country. Some years gone by, the late Mr. Hogg raised several seedlings, but this was before it had attained its present floral eminence. Messrs. Beck and Hoyle and other amateurs

brought out its grand features, and the improvement thus begun has continued up to the present moment. The fancy and spotted varieties are of recent origin, the latter being a decided gain of the French cultivators within the last ten years, who have supplied nearly everything bizarre and odd. We have ourselves produced some seedling pelargoniums of great beauty, and we see no reason why our cultivators should be dependent upon European skill for what they can produce themselves.

The Verbena, of which some of the parents were first introduced to Philadelphia, and originally described in our pages, has occupied more attention generally than any other flower, undoubtedly from the ease with which it is cultivated in the open air, where seedlings can be tried without the aid and the shelter of a greenhouse. For a time our American seedlings were superior to many of those of foreign growth; but with either more care in the saving of seed, or thorough fertilization, the French florists produced a new strain, which, taken advantage of, produced the prominent eyed varieties, which at first were introduced from abroad. Our own cultivators, however, have accomplished so much that the honor of introducing new varieties must be pretty equally divided between them and European cultivators.

The Petunia, the Phlox, the Lantana and other flowers, though enumerating some American seedlings of rare beauty, are rather exceptions than general. The Petunia, in its unique combination of color, is of French origin, as is the Lantana and Phlox; the latter especially having been brought to its present perfection by Messrs. Lierval and Fontaine. The Gladiolus was cross bred by the late Hon. and Rev. Mr. Herbert, but his experiments were with the tender kinds. The Gandavensis tribe received its first great change from the French, and all the varieties, with a very few exceptions, are of the same origin. The English have however, the past year or two, been successful in producing some new kinds which are stated to fully equal if not surpass the French; but of this we have no personal knowledge. We are convinced, however, that American cultivators have only to make the attempt, to add to our gardens the most beautiful varieties.

On the other hand, the Japan Lilies have, like the camellias, been brought to the highest perfection by American cultivators; and we can challenge the world to produce as many distinct and superb varieties as our own gardens contain. These additions have been made by thorough hybridization; a thing which is often spoken of, but rarely done. For that is essentially different from what is called cross breeding; that being merely the fertilization of one *variety* with another; while true hybridization is the fertilization of one *species* with another. This distinction should be borne in mind, for it is in the latter experiments that the greatest changes are made, and the results most uncertain. The Japan lilies have been obtained by hybridization of the Japan, the tiger, superb, and Canadian lilies, one with the other, so that the seedlings partake, more or less, of the characteristics of each. The robustness and hardiness of our natives is mixed with the more tender nature of the exotics, and a vigor of growth, redundance of foliage, and intensity of coloring added to the beautiful Japan species. With the new Japan lilies just introduced by Dr. Siebold and Mr. Fortune, we hope to reap still more varied and equally admired types of this superb flower.

We have not time to enumerate some lesser plants, which have occupied the attention of our cultivators. We have chronicled the greater and more lasting achievements, and have shown, we think, that young as we are in horticultural science, we have not neglected opportunities for advancement; that we have active and zealous amateurs, who will not neglect any means to maintain the skill and high standing of floricultural art in this country; and if they have not done more, it has not been because they were not ready for that duty, but because the general taste has not kept pace with the skill of our cultivators.

We might, in this connection, say something of the progress of hybridization and cross breeding with fruits, but this we leave to another opportunity, as we do some notice of the condition of hybridization abroad, which appears to be attracting unusual attention at this time, and has called out much information, which we wish to introduce to American amateurs and cultivators.

HALF HOURS WITH OLD AUTHORS.

BY WILSON FLAGG.

ICHOGRAPHIA RUSTICA: or the Nobleman's, Gentleman's, and Gardener's Recreation, containing Directions for the Surveying and Distributing of a Country Seat into Rural and Extensive Gardens, by the Ornamenting and Decoration of Distant Prospects, Farms, Parks, &c. By Stephen Switzer. London, 1742.

This work, though written before Mr. Brown had commenced his revolution in English gardening, contains nearly all the useful and important rules and principles of the modern style, and shows that the way was fully prepared for Mr. Brown before he attempted his works. The author alludes in his preface to the general evil arising from the extravagant sums of money which were appropriated to ornamental gardening, a circumstance that disheartened many from engaging in such works. His object was to show how their taste might be gratified with more simplicity and less expense. He thinks the hours which many employ in observing the color of a tulip, or the edging of a leaf of box or holly, were better employed in open and extensive views; in the regularity of this plantation and the wildness of another; in the sweet meanders and the precipitate falls of a river, or the rising of hills or promontories on each side, or adjoining. And he recommends to his countrymen the advice, new in his time, which had been given by the authors of the *Tatler* and *Spectator*, whose satire was chiefly aimed at the tonsure of evergreens and vegetable sculpture, as practiced in that age, after the example of the Dutch.

Our author remarks that the great modellers of the gardens existing in his time "had their *Magazines of Plants*; and it was natural for them to tear up all those beautiful plantations of fruit and forest trees which they found in their way, and contrive plans which were likely to turn more to their profit. And this it was that introduced the Dutch taste, of which people of the common level of understanding grew so fond; being delighted with little niceties and fantastical operations

of art, always thinking that the finest which was least natural; while those that were most capable of art were always most fond of nature; being persons who were chiefly sensible that all art consists in a study of nature. On the contrary, the Dutch taste, which came in with the revolution, was almost universally followed."

Mr. Switzer proceeds to illustrate a maxim which he lays down, and which has since been repeatedly quoted from Sir Humphrey Repton's works, and attributed to him as his own original thought, viz., that *greatness in character does not consist in size and dimensions*. He remarks, "in all cases the lawn or parterre should not be too large, since 'tis a very wrong way of thinking to imagine that true greatness consists in size and dimensions; whereas, let the works be ever so large, unless the parts cohere in harmony, there will be but a great many littlenesses put together.

"This aiming at an incomprehensible vastness and attempting at things beyond the reach of nature, is in a great measure owing to a late eminent designer (Bridgman) in gardening, whose fancy could not be bounded. And this notion has been in many places carried so far that no parterre or lawn that was less than 50 or 60 acres, some of them 80, 90 or a 100, were by him esteemed capacious enough, though it sometimes took up the whole area of ground, and made the building or mansion-house in the middle look very small, and by no means proportionable to it.

"The same extravagant way of thinking prevailed also, to a great degree, in his plan of lakes and pieces of water, without any regard to the goodness of the land which was to be overflowed, but which he generally designed so large as to make a whole country look like an ocean."

After the very sensible remarks of the author upon greatness of character, as distinguished from greatness of dimensions, and upon the fooleries of *vegetable* sculpture, it is amusing to find him advocating all the absurdities and extravagances of *marble* sculpture. I will give his remarks, in an abridged form and very nearly in his own words, as a specimen of the peculiar taste of the age in which he lived. The grace, in his opinion, and the majesty given by statues to

a country-seat, are very great. The greatest and the politest people of the world, the Romans, have filled almost every highway and public place with the statues of their *Patres Patriæ*, as a grateful tribute to their merit; and their gardens at the present day, as well as those of France, abound so much in them, that 'tis in that point they are likely to outdo the people of England.

He proceeds to give some rules for the local distribution, magnitude and general proportion of statues. He considers it an unpleasant sight to view Jupiter, Mars, Neptune, and the rest of the deities, misplaced by a meanness of spirit on the part of the designer, and perched upon a little pedestal; one like a citizen, a second with a pike in his hand, like a foot soldier, and the third upon dry land, with a trident, like a cart-filler. These are great injuries to the politeness of the statuary, and misrepresent the several deities.

Others place Pan, as a tutelar god, in the flower garden, while Ceres and Flora are the silent inhabitants of woods and groves. He alludes also to certain improprieties in their gestures and habiliments; Neptune in the management of his sea-affairs embracing Amphitrite, and Mars in his armorial array dallying with Venus, are incongruities which ought to be avoided. He goes on to say that Jupiter and Mars should possess the largest open centres and lawns of a grand design, elevated upon columnar pedestals, with their servants and vassals underneath; Jupiter with his Mercury, Mars with Fame, and the rest of their attendants. The niches ought to be filled with the lesser gods, or with the warlike heroes of antiquity, or even of modern times.

Neptune should possess the centre of the greatest body of water, in his chariot, attended by the Naiads, the Tritons, and his other sea-attendants. Venus ought to be placed among the Graces; and in all lesser centres it would be proper to place Apollo, with the Muses in the niches, Minerva with the Liberal Sciences, &c. Then Vulcan with the Cyclops in a centre of less note, and all the rest of the deities disposed in their particular places and order—Flora, Ceres and Pomona to their several charges; and the Fauns and Sylvens to the more remote and rural centres and parts of the woodwork.

He thinks Venus, Diana, Daphne and Flora, with their attendants, may be complete furniture for the flower garden ; but they ought not to be small, but larger than life ; though the author does not say how the life-size of these deities is to be determined. The noble grace afforded, in his opinion, by an abundance of these figures (larger than life) placed all over our rural gardens and plantations, is charming to contemplate. He would, under this head, enlarge upon urns, obelisks, pieces of ruins, and other lapidary ornaments of a country seat, but he leaves them for his chapter on buildings.

He concludes all this obsolete discussion by a remark which is more in accordance with good sense. After considering that certain plain buildings, which gentlemen are obliged to construct for *convenience*, have a better effect than the most curious architecture, he adds : " There seems to be a much more inexpressible entertainment to a virtuous and thoughtful mind, in desolate prospects, cool murmuring streams, and grotts, and several other cheap and natural embellishments, than in what many of our modern designers have recommended, in themselves very expensive."

His remarks concerning grass are of a practical sort, and they may contain some hints which have been forgotten ; for it is well known that some good rules of practice in all the arts are sometimes temporarily forgotten. He thinks that in the beauty of its lawns England excels all other countries, and this is owing to its damp, cool, and moderate climate. The cheapest way of procuring grass walks is certainly by sowing hay-seed ; but, if turf is to be had near at hand, he would always recommend it, for there is some trouble as well as uncertainty in the first ; it must be weeded, and is apt to be thin or entirely bald in spots, and it will never be so fine as turf. However, if seeding is to be performed, he recommends that it be done in the autumn, for that sown in the spring is not so good, and he advises that the seed be chosen from those pastures where the grass is naturally fine and clear. He thinks it unwise to procure turfs from any great distance, for the coarsest turfs that are near at hand, by a little good keeping will become fine, and be in some degree better than if they were originally fine. Fine turf is well

known to be cut from commons and sheep-pasture lands ; but in order to save expense he has known it cut in the rankest pasture ground adjoining gardens, in March, when it is short. And this, coarse as it seemed to be at first, became afterwards, with rolling, mowing and cleansing, as fine as the best sheep-walk turf, and not so apt to grow mossy, and to abound with weeds of a coarse description, that spoil the fineness of the carpet.

It is generally thought that the sheep-walk turf, coming from poorer land and being placed on richer land, is improved by this change ; but he adds, " it is a great fault to lay that and any sort of grass on rich land, which is always apt to be full of worm casts, and so a continual burden and trouble to the green-keeper." If the ground, therefore, is naturally rank and good, he recommends a coat of *more indifferent mould*, three or four inches thick, to be laid upon it, or else remove the whole surface away. But if, on the contrary, it be hot burning land, lay on several inches of good strong loam or heavy clay soil. This will wonderfully preserve the grass in the summer season, and always keep an agreeable verdure. All slopes in particular of this dry hot land should be thus covered, because, without it, they cannot retain the rains to refresh the turf. These first-mentioned rules, however, he remarks, are applicable to the garden in particular. As for other exterior parts, the ground cannot be too good, if it is designed for feeding ; and its goodness will preserve the verdure as well as the pasturage, and a good green he considers one of the pleasantest colors in nature.

There is nothing remarkable in his essay upon water, but some parts of his discourse on wood deserve attention. The planting and sowing of wood, and guarding country houses from the winds, beside the other advantages of shady walks, cannot be thought of too soon ; neither, he remarks, can the aged parent leave a better legacy to his family than young woods and coppices growing around his habitation. The expense is little, and it is attended with great profit and pleasure. Towards the advancement of this end, if the house is without coppices and woods at a reasonable distance, which is the case of a great many old as well as new seats, he advises

the fencing in and sowing a wood or a coppice of twenty or thirty acres. If the house is to be built, by the time it is finished you may see a great progress in the growing coppice. In four or five years you may expect to find the Witch and Dutch elms, limes and other trees eight, nine, or ten feet high, from the seed, and, as it were, struggling which shall outvie the others in growth. This sort of woods, as they are more natural and rural than the formal plantations, so much in use in his time, are also less expensive, an acre of this being made full five times cheaper than the other. And as the making is so much cheaper, so likewise is the keeping; for, being of a much more natural aspect than set plantations, the less keeping will suffice.

A nursery of regular and well-managed plants will repair any defect, and make what addition the designer pleases to the beauty of these woods. When, by any of these methods, these rural gardens shall be laid open by extensive avenues all round, in a simple and unaffected manner, and when those large sums of money, which have been wasted upon the trifling and diminutive beauties of greens and flowers, shall be lightly spread over great and extensive parks and forests, they shall be gardens worthy of the politer taste of Great Britain. The author in these remarks has evidently anticipated the revolution in rural taste which soon followed, and to which his writings contributed a principal share.

“In the mean time (he remarks) I cannot but humbly recommend the study and practice of these things to the nobility and gentry of Great Britain, with all the earnestness that the profit as well as the nobleness of the subject requires; that by it they also gain another two-fold advantage, the health of their bodies; and by employing the poor, reap another, very often delivered from the pulpit.”

“If any former attempts have proved unsuccessful, let not that deter them from renewing the charge. They failed probably from wrong measures, among which the excessive expense of gardening may have been one. But from this method laid down, the decoration and improvement of a country seat will not be that expensive bugbear it may of late have appeared to be. And indeed by what observations I

have made in many parts of this kingdom, *there is generally twice the money expended on a bad design as would have made a good one.*" The author alludes to excess of ornament, which is vastly more expensive, and, after all, less charming and interesting than nature and simplicity.

I cannot bring this essay to a conclusion without quoting the author's excellent remarks on the pecuniary profits derived from such a plantation as he has recommended. "And here it may be supposed that I should give a pecuniary calculation of my observations on this head. A friend of mine has only a little grove of oaks, which he very often views with satisfaction. It is about a hundred yards long, and forty wide, which, multiplied together, makes three fourths of an acre and twelve roods, on which I computed were above 160 oaks, that in about 120 years' time would be worth, at a moderate computation, £5 a tree, which is in all, £800. As for the expenses of sowing and fencing, the underwood sufficiently pays for that, and much more than that, all the while. And I would from this, appeal to any bank or trade, whether any person can lay out so small a matter of money to so great an advantage, and having, besides, the pleasure of seeing those *bold sons of Jove* advancing their summits towards the skies, in a perfect emulation of one another. It seems to be the glory and endeavor of the most provident part of men to heap up wealth for their families. And sure they cannot possibly do it better than in this, when perhaps, for the laying out of £100, their heirs will be repaid above sixty-fold, even £6000, exclusive of the rent of the ground. A valuable return for so small an expense."

His "next consideration is the healthful, easy, and cheap distribution of time it affords, which would otherwise lie heavy on our hands. For as man is an intelligent, rational being, and has a mind always in action, either in that which is good or bad, how is it possible he can employ his thoughts and his hands better, than in these busy, innocent, happy and successive toils, that follow each other in pruning, dressing, and ordering of nurseries and our other plantations?"

CORDON TRAINING OF FRUIT TREES,

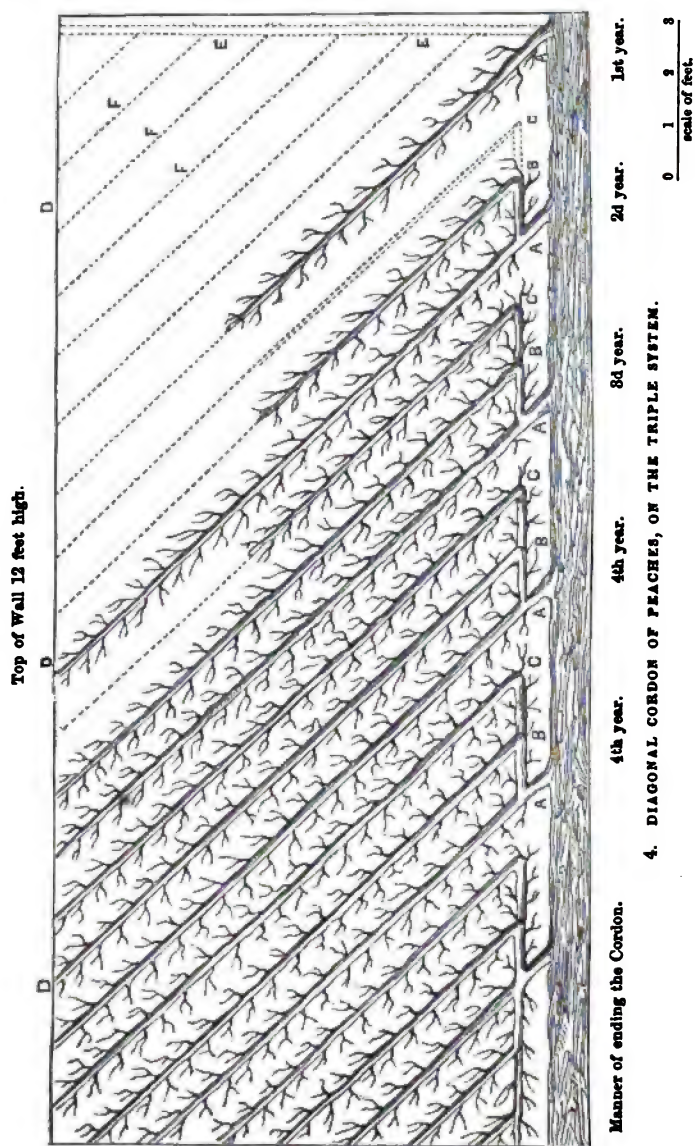
ADAPTED TO THE ORCHARD-HOUSE AND OPEN-AIR CULTURE.

BY REV. T. COLLINGS BREHAUT.

The trees are planted at intervals of 36 inches from stem to stem along the wall, as seen in the engraving (FIG. 4), where they are all at the angle of 45 degrees, even the tree only in the first year; but this was unavoidable; that is, the trees are laid in at 3 feet from each other only. My own trees are planted and trained at 30 inches of interval, but this is too little—36 inches are preferable. Each tree, in the engraving, is represented as having either three leaders fully grown, or in the case of the tree of the first year, it has dotted lines indicating the future position of the other two leaders. In the tree of the second year, the second leader has ascended half-way up, while the first leader is completed. In the case of the tree of the third year, the first and second leaders being completed, the third leader is now half-way up. The two trees of the fourth year have all three leaders complete, and the complementary tree which fills up the corner is shown as having its leaders fully developed. The extreme corner is completed as seen by extra short leaders, and in the first year's tree the corresponding corner is indicated to be filled in by an upright leader with short side branches, so as to cover the whole space. This filling up of corners cannot be done so well with trees on the common method.

Of course, in the first year, all the trees, if planted simultaneously, would all be alike, having one leader and blank spaces for the two future ones, and in the second year the whole wall would look like the tree of that year; and so on. But at one glance the different years can be seen and understood. I must add, that if the trees shall be planted at 36 inches from each other, the intervals between the leaders will of course be 12 inches, *i. e.* the shoots on each leader extend 6 inches either way. Forerights are also preserved (not represented, to avoid confusion); but this is a very important part of the system, and adds much to the beauty of the whole, making each leader like a green cable having blooming fruit

embedded in appropriate bowers of leaves; not buried, but visible and well exposed to the sun's rays.



I do not remember seeing any trees trained exactly in this fashion, and as to the combination of culture, under glass,

with the great advantages to be gained by this *particular Cordon*, it is this which has chiefly induced me to publish the results at all. By this excellent, but too little known method, the most splendid crops can be grown, and it is not too much to anticipate the time when every back wall of an orchard-house, or of a forcing nectarine-house, will have its Diagonal Cordon on three leaders. One will not do; two are only rather better, but with three success is certain. More than three would take too long a period to cover the wall, by extending the four years necessary with three leaders, to five or six years, in which case little time is saved. Neither can a Cordon on other principles than closely spurring-in be very successful. At any rate it is far inferior in every way, and unworthy of competing with the one now described, especially in the quantity of fruit obtained.

I can cordially recommend this kind of Cordon to amateurs, having had the greatest success with it of any. It will not suit span-roofed houses, which have, of course, no back walls.

But lean-to houses are far warmer. Perhaps a union of the two would be useful. Span-roofed houses are handsomer, and, when very large, extremely beautiful. In this case other kinds of Cordons are more suitable, such as vertical, with pyramidal bases, which will be described presently.

The formation of a Diagonal Cordon with three leaders is thus commenced. Straight, well-grown trees, one year old from the graft, are selected. These trees are planted in the open ground in October, November, or December, but the earlier the better, and in the orchard-house, at any time during the winter, except in frosty weather. They are laid at an angle of 65 degrees against the wall, in either case at an interval of 36 inches from one another. One third of the top of each tree may be removed; but there is no objection to the whole row being cut to an equal height, unless in the case of particular trees. A healthy front bud is chosen, in *every case*, to cut down to; therefore when I said equalize them, of course it is far better to regulate their height by the bud you cut down to; because you must have a healthy leaf-bud, and below it must be no blank spaces where there can be no shoots.

If blank spaces occur, then reject that tree or it will cause you trouble; but if you choose to retain it, either because of the sort, or because you fancy it, then cut down well to a good bud, no matter how high or how low you meet it. It must be in *front*, because the wound is thus far less difficult to hide. This is of *great importance* in Cordon training. If you must cut to a side bud, then you have no very straight stem after all the care bestowed on the rest. There must be no unhealthy wood near the leading bud. How often, by neglecting this simple rule, has the trouble of years been wasted! Cut, sloping upwards at a gentle angle, till you get to about an eighth of an inch above the bud. The trees are then well tied to the wall; the young laterals are brought forward on either side neatly, and the back shoots are generally cut in to one or two buds; for if you cut them off there will be no reserve to supply accident. Sharply cut back these slender laterals to two eyes or buds. At this stage these are small, therefore be in no hurry to cut them off. Then the forerights are to be similarly treated, *i. e.* cut back to two buds, and the trees are ready. If the wall has wires or rails, these must be at 12 inches of interval. Then a light guiding rod is tied above the end of the leading branch in order to direct the future young wood. Prepare and place this at the winter arrangements. Water freely for some weeks. No wall under 11 or 12 feet high is eligible for Cordon training. If in the open ground it should have a good coping of one or two feet to ward off the drenching rains. If, as was said before, you do not immediately require the trees, or have not your wall or house quite ready, then pot the trees till that period, and no time is lost; at any rate, a reserve of some half-dozen should *always* be kept thus potted in case of any accident or otherwise.

Thus, if one of your trees become unsightly or deformed, or refuse to progress, then remove it without delay, and place one of your potted trees (the most vigorous) in its place. This the amateur must particularly attend to in Cordon training. Trees one year old are cheap, and so are pots, and there is no excuse for not having a reserve ready trained on the same system to supply vacant spaces.

With respect to the color of walls for orchard-houses (lean-to's), white is preferable to black, though the latter has certain advantages, but which are most attainable out of doors: I mean with respect to radiation, but white is certainly preferable for Cordon training, as so much of the wall is covered with leaves that no burning can take place. A coat of lime-wash is invaluable on account of that "*rubra cura*"—the red spider, which is the pest of peach-houses, and requires to be kept down by regular syringing and ventilation. The white color adds also very much to the appearance of a house, and if a dash of rose or pink be added, the effect is considerably heightened. Then with pillars of a clear blue, and ruddy gravel walks between the well-kept borders, the whole may be as ornamental as any conservatory; and there is no reason why a little gilding should not be shown on the cornices, &c., especially as the house should be devoted to chrysanthemums in the autumn.

To return to the plantation of the row of young trees on the Diagonal plan. A little watering as needed is the completion of the first year's work.

In the spring of the ensuing season, the two eyes or buds to which the laterals have been cut will generally each produce a shoot. If we call these two shoots, on which the future work will be done, the "right and the left shoot," and the original first growth a "spur," it may tend to simplify the matter. These two shoots are, then, the "second growth" on these "spurs." As soon, therefore, as these second growths have made six leaves—any small leaves at the bases which have no buds in their axils, do not count—pinch down to two leaves on the *upper* side of the tree, and to three leaves on the *lower* side. The reason for this difference is found in the more vertical position of the upper shoots, and therefore in their greater tendency to elongate. As to the lower-side shoots, they, from their position, will be only too inclined to become covered with fruit-buds, and in their case we must look for obtaining some leaf-buds also.

To repeat: these second growths (*i. e.* the right and left shoots) having reached 6 leaves or 4 inches, must be pinched back—if on the upper side of the Diagonal leaders, to two

leaves, and if on the lower side thereof, to three leaves. In a short time each of these leaves left will put forth another stage of young shoots, springing from the axils of the leaves. This is the "third growth." As soon as this "third growth" on either side has reached three leaves, pinch back all to two leaves. A "fourth growth" must be closely pinched in to one leaf, and if anything more grows, pinch it closely in also. These third and fourth growths would be bearers of buds, able, in ordinary seasons, to bear the next year, as well as the buds on the second growth; but in practice, the object being to keep the spurs and the growths on them *within six inches*, these late growths must be held in the light of "feeders" to the others, just as two eyes are left beyond a bunch of grapes to draw the sap to the fruit. These successive growths in the summer pinchings may exceed the six inches by an inch or two in some cases, especially in forerights, while they may only reach to five inches in other cases; nevertheless, the rule is to keep them *as near as possible* at this extension. In the winter pruning they will be shortened in *alternately*, as will be described.

At the risk of tedious repetition, I must refer again to the engraving, (FIG. 4.)

The tree in the right-hand corner (marked 1st year) will represent the appearance of the whole of the row of trees at the end of the first year's training. This is the second year of plantation.

The tree with its single leader A will have reached more or less to half-way, or two-thirds of the wall, supposing this to be 12 feet high. A certain portion of the tree (that of last year to which it was cut back,) will now appear clothed with wood. The spurs on either side of the leader A will each have their two shoots pinched back successively to, say, 6 inches in all. The foreright spurs and shoots on them are also to be treated by pinching them as if they were on the upper side of the leader; but they are not shown in this diagram, to avoid confusion. At the base of the single leader A, and at 12 inches from the surface, a strong shoot from one of the spurs has been allowed to extend for 12 inches laterally, so as to be in readiness to form the second leader B

when required; but if allowed to extend, and to be turned up when it reaches the 12 inches (which it is destined to do), so as to form the second leader B, then it would injuriously affect the growth of the first leader A. From this rule no deviation must be permitted. I have spoilt too many trees from impatience, not to warn others against this error. Cut this lateral back in winter to a healthy bud, and guide it by a light rod perfectly at right angles to the leader A. The tree which is now being described does not show this lateral, because it is in the corner, but the second year's tree will show what here is meant. The dotted lines indicate the position of all future leaders, and thus E E explains how (in the case of the corner tree only) a *future* vertical leader in the direction E E will ascend, and future diagonal leaders be developed from this, the only vertical one, as marked F F.

Winter Pruning.—Let us suppose that when the leaves drop off from the trees there will appear two shoots on each spur, each shoot composed of the various growths of this season. Now the fruit will only appear on the wood of the *second year*. In this case the fruit buds nearest to the spurs themselves are on this wood, and the fruit will appear at the base of the spurs, and only in some cases at their top. Of course the trees are very young to bear, but they will do so in many cases, and if this occur, then only one or two peaches must be allowed to remain on each tree.

By the close spurring-in practised during the summer, and the not having had recourse to the old and ridiculous method of choosing long weak shoots for the bearing wood, the buds at the base of the spurs will generally become fruitful. All the fruit, if any, will appear on the bearing wood at the base. The young tender laterals on the young extremity of the leader, which has ascended some way upwards, must be pinched down to two buds previously to this period.

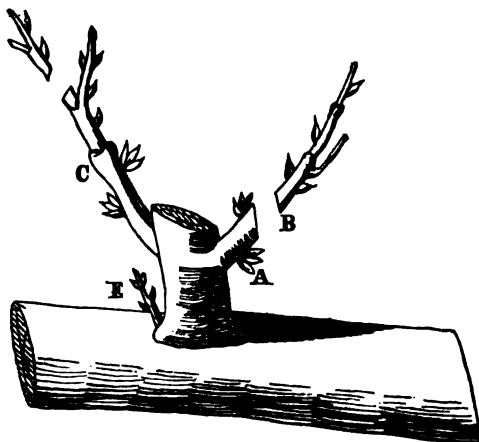
The two shoots on each spur must now be shortened in. One must be left long for fruit (if possible), and the other must be cut short to furnish new wood to bear alternately. The long shoot must be cut to any triple bud you can find within the six inches prescribed. If you find no triple bud on either shoot for bearing, then cut them both back alike to the

two leaf-buds *nearest to the spur*. But if, as is generally the case, you find the triple bud desired, leave this shoot long, and cut the other to two leaf-buds, to furnish two new bearing wood shoots for the year after next. If you find a triple bud to cut down to in the case of the shorter shoot, this is an additional advantage, as it is fruitful, and you have a double chance of peaches. But the whole system revolves on these two shoots, which in time become three or four,—one of them being left long to bear, and the other being cut short to succeed it. In this way a succession of fruitful wood is sure to be obtained, while on the old method, when once a shoot had borne, it was slightly shortened in, and permitted to bear on the new growth; so that in time the fruit was produced so far from the centre, that a severe pruning, most injurious to the peach, was needed. The shoots on the spurs multiply in time, and are cut back, or left long, as required. Every successive pruning must have for its object to keep the bearing wood close and compact, and allow on the long shoots left for fruit just enough of leaves to nourish the fruit.

Two shoots for each spur are required. If any spur have not the necessary two shoots on it, then it is a vast defect, and must be remedied by pinching back judiciously at first, and by endeavoring to encourage the single shoot to become double; of course the nearer to the spur the better. In this case all our endeavors must be directed to obtain the two shoots, *quite irrespective of fruit*, and at this winter's pruning, if there be but that melancholy single shoot, then vigorously cut in to two *leaf-buds*,—not the fruit-buds,—for if you do the spur is ruined for ever. However, even then the *whole tree* is not spoilt, for there are so many spurs, and so many shoots, that a remedy can always be found. A practiced eye will see the difference between a fruit and a leaf-bud almost at once—certainly by midsummer; while a mere beginner would be puzzled to decide till the ensuing spring.

Second Year's Training.—We come now to the tree in FIG. 4, marked "second year." The first leader A will rapidly ascend and reach the top of the wall, and the lateral left to form the second leader B, having also shot out, is turned up sharply, when it has reached twelve inches from its

starting place. It will, in the course of this year, reach to about half-way towards the summit of the wall, as seen. As soon as the first leader A has reached the top, pinch off the end; this will strengthen the second leader. The second leader will be shortened a little at the winter pruning, as the case may be, always remembering to cut to a front bud. The pinching of the various growths on the two shoots goes on thus this year. That on the longer shoot must be pinched in *more closely* than that on the shorter one, because it would extend too far otherwise. It may reach to seven inches with-



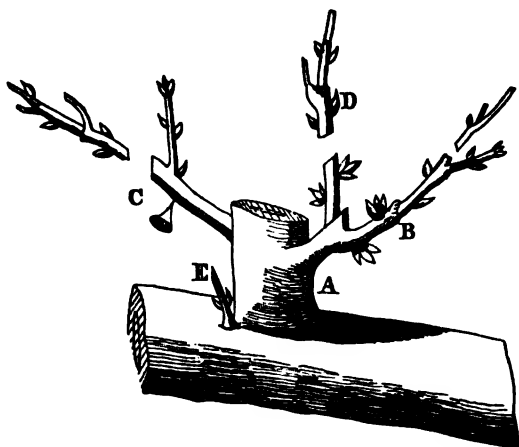
5. FRUIT-SPUR ON THE PEACH, SHOWING THE SUCCESSIVE GROWTHS, AND ALTERNATE PRUNING.

out any confusion, and if a foreright, and in the orchard-house, it will even be better so. Thus the new wood *on the long shoot* may well be pinched off to one leaf as soon as three leaves are formed, and the next time also to one leaf, as soon as two leaves are formed; and so on.

But the shoot or shoots shortened to two buds will require to be allowed to grow by a *leaf more at a time*. Thus, as soon as four leaves are formed, pinch back to two leaves, and afterwards to one leaf. All this will be readily understood after a season's practice. Of course those natural shoots which make their terminal buds—and are called by the French "*rameaux à fruit bouquets*," because they appear like a small nosegay,—should not be touched wherever they appear.

They will soon be known, and generally spring from the bases of the spurs. See FIG. 5, of fruit-spurs on the peach, where it is seen springing from the base of the spur, and is marked E. The present winter's pruning of these two shoots now requires notice. Taking FIGS. 5 and 6 of peach spurs,—A indicates the original spur; B the right shoot; C the left shoot; D the right shoot which has developed another one, and E the natural fruit-spur.

FIG. 5.—Here, on the spur A, the right shoot has grown by successive starts (as seen by the divisions) upwards. The little elbow above B is that part of the shoot which was left



6. FRUIT-SPURS ON THE PEACH—ALTERNATE PRUNING.
SECOND APPEARANCE.

beyond the *last bud* pinched down to, and often dries up rapidly. Two triple buds appear on the second growth, which are to be carefully left. They will be found in FIG. 6, as developed into two new shoots marked there B and D. But at present the shoot is to be cut back to them, and failing them, to two leaf-buds for wood shoots. Never cut, by any means, to single flower-buds, because there should always be a *leaf-bud at the extremity of every part*, no matter where or of what strength. In a triple bud the central one is a leaf-bud, and the other two flower-buds, and thus it unites every necessary qualification.

The left shoot in FIG. 5 is also seen. The second growth

has, or may not have, its two triple buds; most likely it will, because that is the place to look for them, and pinching-in helps much to this important end. Then, higher up, appear the third and fourth growths, the former having a neat little lateral, which is far more likely to be fruitful than a powerful shoot. These latter shoots, called "gourmands" by the French, were the bane of the old systems, and do what you would, if on the upper side they always would come. In vain they were cut back; in vain they were twisted and pinched off; the least neglect produced a vigorous shoot, like a leading branch, just where it should not be. Of course the sap rushed with tenfold violence into these enticing corners, and of course the gardener did not see it, and then, by the winter, the rest of the branch was languid and feeble, and the tree spoilt. But in this system all this is rendered nugatory; there is little or no danger of this occurring. Instead of this giant, we see a neat little fruitful shoot, which, crowned with an appropriate bud, is very like a natural fruit-spur.

Leave these alone, and cut down close to them, as seen in FIG. 5. The branch is then, with its short right shoot, ready for wood-bearing or not, as the case requires, and its long left shoot cut for fruit, having a chance thereof at the two triple buds *on the second growth*, and on the neat little lateral before so commended. As the nearer wood is the ripest, if the fruit appear on the triple buds below, so much the better; at any rate there are plenty of chances, because this little lateral, though born, say in August, will probably be quite ripe—at any rate it will be in the orchard-house.

In FIG. 6 we have the same spur A, and on it the same second growth B and C, only B has developed into two long shoots, and these have been successively treated as recommended. In the winter the new development D is cut back to two new buds, generally triple, and its fellow left long for fruit, of which there *must* be a great chance somewhere or other. You can hardly fail now. The left shoot C has borne a peach or nectarine, where the triangle near C indicates its place. After bearing it is cut back, so as to secure new wood.

In succeeding years, by the time the wall is covered, say in

four years, all the leaders should have their spurs crowded with these *long and short shoots*, two, three, and four to each; and as I said before, remembering to have a *leaf-bud at every extremity*, and to keep *half short* for wood, and *half long* for fruit, how can any one fail to have fruitful trees? This is all the care required for the spurs and growths on them, remembering that if the long shoots in summer, from their very length, grow to seven or eight inches long, they have always the corresponding short shoots on the *opposite leaders*; and as these may not extend beyond some five inches, one will fit into the other. At any rate it is of no matter, for after this experience a man must be dull indeed who could not manage to get his wood compact and short somewhere. There is no danger of not having superabundant shoots of all kinds, and you can cut them clean out of the spur whenever you like; besides, they may have grown into two shoots, as many do, immediately from the leader itself, and then you have abundance of room. Let my readers be assured of all this, and practice it fearlessly: "cut boldly and fear not." As Mr. Rivers says of potted trees, "Any one can manage them;" and I daresay any lady could manage a Diagonal Cordon easily and successfully after reading these instructions.

As to the getting the third leader to grow, it is now easily seen; and when the three leaders are fully grown, all that is required is to allow a foot or two of the extremities, as in vines, to grow upwards, and then to bend them downwards gradually, and cut them off in the autumn. This exhausts the superfluous sap, and keeps the upper shoots fruitful. Nevertheless, I must beg to say that it is the lower shoots that are likely to languish first, and therefore they must not be too rigorously pinched in, but rather favored, and rested from time to time. The finest fruit will be *near the top*, which proves the abundance of the sap and juices at that part.

A Belle Beauce peach in my own orchard-house bore thirty-two fine peaches on the leaders A and B, but of course the top of A was not very ripe, and half of B was quite youthful. Reine des Vergers, which bore early in August, had twenty splendid peaches, all on the lower part of A, it being in the second year. Galande had twenty-eight on a similar part, in

spite of the backward season, and the nectarines Early Newington and Hardwicke Seedling (a delicious nectarine), were also very fruitful on this leader A. Malta, Chancellor, Bourdine, and Pucelle de Malines were magnificent, though very young trees. I like Malta by far the best: Noisette calls it his favorite. Leroy, Rivers, and many others speak highly of it; and, being not too vigorous, let me seriously recommend it. It is a September peach, and the one that hangs so well on a tree: no mean quality.

Nectarines, however, and clingstones (Pavie peaches), which come late, and will find their day of triumph in England *before long*, are best suited for the back wall, because they are the most valuable. So prolific is this plan, that I would not recommend the mid-season peaches for it; you can *have them in the pots*. A very early peach, but not the little nutmeg peaches, should be placed in a warm corner, and trained in this way. Acton Scott is scarcely good enough. Early York or Crawford is better, or some of the new American varieties, which before long will be our very best early peaches.

Stanwick nectarines crack, but they have done tolerably well with me this unlucky year. They are really splendid, though they generally require forcing.

I only repeat, to end this chapter: keep to the wood of the second year; and as every shoot which has borne fruit will not again bear, it is well to cut off the shoot which has given fruit *as soon* as it has done so. This is better for the practiced hand to do than for a mere beginner, and should not be done in the early stages of cultivation.

IN-DOOR GARDENING.

FROM THE GARDENERS' CHRONICLE.

IN-DOOR GARDENING, or the culture of plants in living rooms, has hitherto received but little attention, notwithstanding the great number of plants cultivated in this way. That there is a great want of information must be apparent to all who

hear the complaints of amateurs, disheartened in their attempts to secure healthy plants under this kind of treatment. Disheartened, because a strong and healthy plant, the very embodiment of vigor and beauty, becomes in so short a period, when transferred to the in-door apartment, a long, lean, lank specimen,—the ghost of its former self,—and the failure to regain anything like a handsome specimen induces him to give up so pleasant a species of culture, and forego the gratification to be derived from a pretty collection of flowering plants.

That there are obstacles to overcome in the management of house plants cannot be denied, especially when, as is now so general in our cold climate, our dwellings are heated by furnaces, and made air tight by double windows during the winter. The warm, dry atmosphere, kept up both night and day, are inimical to a healthy vegetation, and in it plants will often languish and die. Yet, with the exercise of proper care and skill, much may be accomplished even under such adverse circumstances. It is important therefore to know what this careful treatment is.

We do not intend at this time to answer, ourselves, this question in detail, but rather to invite attention to a series of articles by a lady writer of experience, who very satisfactorily supplies the information so much needed, and so evidently derived from actual practice, that it may be relied upon as a guide to success in the entire treatment of in-door plants.

We have the pleasure of an acquaintance with several ladies who cultivate their plants with such consummate skill that even the best specimens of greenhouse culture would not surpass them. Pelargoniums, primroses, azaleas, roses, verbenas, monthly carnations, and even camellias are successfully grown and flowered, and their windows are gay with blossoms the larger part of winter: this, too, in furnace-heated rooms, so very prejudicial as we have already stated. But the secret is, that they are not reared in such a hot place, but brought forward in cooler and more airy rooms, till the period for their blooming arrives, when the accumulated vigor of such treatment carries them safely through the adverse circumstances in which they are placed. A plant already enfeebled sinks under it.

The general impression is, that all plants must have just such an amount of heat; this is true at some period of their growth, but they also need a period of repose, and this can only be obtained by temperature, reducing it below that point at which their growth is excited, and not so low as to endanger their life: thus, in our warmer seasons, nearly all plants have a tendency to exceeding vigor, and when removed to the house if the heat is still applied they continue to grow, though deprived of sun and air; the result is, that such a growth is weak and unhealthy—the constant excitement preventing the formation of buds or blossoms, or at least only in a partial degree, and, ere spring arrives, they droop exhausted and worn out. If, on the contrary, such plants, when removed in doors in autumn, are placed in a cool and airy room where the frost cannot reach them, they ripen and mature their wood; they become stout, stocky and healthy, storing up strength against the demand that will be made upon them; and when in due season they are transferred to the warm air and sunny aspect of the parlor window, they break into growth with great vigor, and, carefully treated, flower as profusely and are as ornamental as the average of greenhouse plants.

These then constitute the principles of success, which we may enlarge upon at another time:

1st. A vigorous summer growth.

2d. A cool, light, and airy situation, until the period of blooming in winter or spring.

3d. Repeated showerings with the syringe.

With these general hints, we commend the following remarks to the careful attention of all lovers of in-door gardening:—

In writing a few hints on the care of window plants, I think my best plan will be just to set down the things of which my own plants remind me, mentioning also any past experiences and any especial hints that have proved useful to me. Window gardening is indeed, from first to last, always one series of constant new experiments. One plant surprises us by growing so very well; another will not grow ever, and another disappoints us till we hit upon some quite unsuspected secret, and then we wonder that so small a thing could signify.

And that is a thing for window gardeners to think of—*there is no small thing in gardening*. A little more or less water, and a little more or less air, and a little more or less light, and a little more or less warmth, are just the very things on which depends the difference between beautiful healthy flowers, or poor, scraggy, ill-conditioned plants.

Bulbs most likely, and cyclamens, camellias and heathis, will be all the flowers we have in our windows now. In plant cases of course we can have more, and those we have last longer, but we had better first consider our open flower stands.

There are two or three dilemmas I foresee for the hyacinth growers. Sometimes a bud which we thought was nearly out begins to turn brown and shrivelly. This is most likely caused by some change of temperature. For instance, one of my glasses in the hard frost last week was put upon a chimney-piece, where I did not observe it. The consequence was that two or three buds got damaged by the heat and dryness. Besides, if the bulbs are in a window, looking to the east and south, a very hard frost at night, followed by a sunny morning, is likely enough to result in some scorched and shrivelled plants, caused by sun or fire heat touching the foliage if it has got frozen. These plants should therefore be moved at night away from the window, but never brought near the fire.

Then there are hyacinths which will not grow up at all. I would not be in too great a hurry, because when they are just in flower they often grow very fast—and there is not any exact means then of stopping them when we wish to do so; but if it is certain that they do not grow, a thick piece of drawing paper rolled up into a cone, with a small opening left in it at the top, is a good way of making the blossom rise. Standing the plant in a plant case or putting a bell glass over it, is however a more certain and much more pleasant plan—for, rolled up in paper, the poor flower looks as if it were under a great extinguisher.

My own hyacinths have always been remarkably fine, when allowed to stand for a week or so in a glass case, either cold or very slightly warmed. If grown in water they must now be kept well filled up. Last winter some of my best were

half way up the bulb in water, and a spoonful of pounded charcoal was put into each glass.

Washing the leaves with a large camel's hair brush and tolerably warm water is a marvellous help to hyacinths. If any one wishes to have these flowers in glasses, or China dishes, in which they have not grown, the roots can be most readily washed from the soil if they have grown in pots, or even in garden beds, and can be arranged with tulips, scillas, crocuses, or narcissi, in either sand or water. The only thing to be careful for is not to break any roots whatever. I always find by far the safest plan is to wash the soil away and to wash it in again if they are to be replanted.

Hearing that large trees moved safely thus, it struck me that the water-loving bulbs would surely answer also; and, in point of fact, I have moved quantities of things in this way, and never known them damaged. It is necessary, however, to be very careful to see that the roots have not grown down through the pot, or got themselves mixed up with pieces of crock or charcoal. If they have, it is not safe to move them.

Then there are the cyclamens, the loveliest of little flowers, and sometimes very sweet. These, like the hyacinths, require a great deal of light, but in their love of coolness and delight in air they far more resemble snowdrops. In fact they will not live or flower tolerably in too warm a place, and though they must not be dry they do not like much water. The *Cyclamen persicum* will be in flower for several months longer, and any one who wants three or four pretty—I may say exquisite little plants, will be very safe in obtaining some of these. It is a matter of taste, but I do not think that the variegated-leaved kinds are as pretty as the others. Variegated leaves, I think, are meant instead of—not to accompany flowers.

Few people, I think, are proof against the delight in spring of having Lilies of the Valley, with all their fragrant scent and their delightful freshness, growing up in clusters in their drawing-room gardens! At the moment I write (in the first week of February), there is just such a cluster delighting me by its promise whenever I turn my eyes to that corner of my

plant case. No less than 14 blossoms does that one flower pot promise ; and then, besides, there are the lovely leaves, which rival the flowers in beauty.

These lilies were taken up last autumn in one good lump, in the nursery whence they came, put into the flower pot, and allowed to stand first out of doors and dry, and then in-doors just to be safe from frost, while water was given them by very slow degrees. Barely a month ago I placed them in my plant case, at the warmest corner (inuring them to it, however, by a day or two spent previously at the cooler end), and there they almost at once began to shoot up strongly, till, as soon as I found them sufficiently advanced to show the little buds by the side of the folded leaf, I removed them thence into a lighter window, and placed them there in a cooler spot, giving them no longer any heat to the roots. Standing in a box of cocoa fibre or sand, they do not need often watering, but occasional washing with a paint brush and fresh warm water is a great advantage, in both securing a fresh and healthy growth and preserving them utterly from the ravages of green-fly. As soon as the blossoms are fairly open, the pot may be taken to a sitting-room table, only, if we are anxious to preserve the delightful flowers, we shall be very careful to cover them with a shade when the room is hot and dry, or when lamps and gas are burning.

When the flowers fade, they may be cut off at once, but the leaves should be carefully preserved uninjured till they die off naturally. The pots then may be laid on one side in some out of the way corner till about November when it becomes time to take them in, and to water them. It is quite a mistake to suppose that they will not flower well a second year. I have had them do so at least three years together, and judging, by the aversion the plants have to be moved, I should say with confidence that the longer they last, the better they will bloom. A little soil should always, however, be scraped off each year before we begin to water them for spring growth—and some nice leafmould, or cocoa-nut fibre, should then be put on.

By using plants in pots one holds the time of growth so much in one's own hand that I have had these lilies blossom-

ing as early as February, and as late as September, without any help beyond a plant case, and a window sill.

Even without the former, one is not much worse off, a kitchen chimney-piece for the first three weeks' growth, "while the buds are swelling," and then a window-sill, will give us not very much later, and not at all less healthy flowers.

Window gardeners now should bear in mind their balsams, and their lobelias to be raised from seed. An old lobelia plant also, cut down to about three inches from the ground, keeps putting out little shoots which root very easily put into sand and water. The sand should be in a saucer, just enough water to wet it well and cover it—and the little cuttings dotted in all over. This may be placed also on a chimney-piece, though the best thing for it is certainly a warm plant case. These cases, to which, from my continual use of them, I am obliged to allude so often, are frames of glass set on a wooden, zinc-lined box, which is fitted with a case for containing hot water. The water being renewed each morning before it cools, communicates so much warmth to the sand or fibre, that it retains some heat for very many hours.

These cases are certainly very pleasant adjuncts to a window garden, yet it is really wonderful how much may be done without any means at all—but with an inventive genius, basins even, filled now and then with hot water, hot sand—even little lamps for very special plants—what a world of pleasure there is in all our own contrivances.

A row of little bottles containing each a cutting often is a means of striking delightful plants. The difficulty however is how to accustom plants thus grown to a more solid food when the time comes to plant them; of this, however, we must speak another day.

At the present moment I want only to give one hint—people are apt to think plants must be wrapt up so very warm at night just like so many chickens. The real truth is that the heat in which they stand should be always in exact proportion to the amount of light—light days warmer, and dark nights cooler—keeping clear of just the *lowest* degree allowed for the kind of plant, in its particular state—the sunny days

or the sunny aspects bringing with them their due degree of extra warmth from sun heat—the duller days and the more northern aspects having a lower heat.

Plants *lengthen* in heat, but they only *increase* in light, and window gardeners all may well lay that hint, long laid down, to heart.

POMOLOGICAL GOSSIP.

STRAWBERRIES IN MISSOURI.—The Missouri State Horticultural Society recently held its annual session at St. Louis, and the proceedings are now publishing in the *Prairie Farmer*. Among much interesting information in regard to our well known fruits in that section, we find the following discussion about strawberries, which may interest cultivators of this fruit. It corroborates what we have stated about the Wilson, and shows that that old variety, the *Triumph de Gand*, rejected by European cultivators, as well as the amateurs around Boston, some years ago, has no qualities which should commend it over other foreign sorts. The discussion was as follows:—

WILSON'S ALBANY.—Mr. Morse. I am opposed to it for family use.

E. B. Coleman. It is the most productive. Knox prefers the *Triumphe de Gand*. Wilson's Albany is sour. I place McAvoy's at the head.

Mr. Pettingell. Is it more liable to drought here than others? It is on the prairies.

Mr. Morse. My ground is gravelly with a southwest exposure. A year ago the drought was bad, and Wilson's Albany suffered a little the most. Last season I saw no difference.

Mr. Clagget. I do not like it for family use, but it is of good size and hard enough to bear transportation well.

N. J. Coleman. I prefer it because—

1st. It is the most productive.

2d. The hardiest.

3d. When fully ripe it is good.

Too many pick it when it has just turned color; when fully ripe it is sweet. We have had fifty varieties, and it is three times as productive as any; it beats the Triomphe de Gand four to one.

Mr. Claggett. I do not consider it the most productive. Think we will cause mischief by so commending it and endorsing it for family use.

Mr. Mudd. I don't like such a *cheat* for family use—it is too sour.

E. B. Colman. It needs very careful mulching to keep the berries out of the dirt, owing to its short stems.

President. It is not ripe generally as seen in the market; it is ripe when the seeds are brown; it is then much improved.

Recommended for general cultivation for market purposes.

TRIOMPHE DE GAND.—Mr. Morse. My experience is short but satisfactory. A year ago I would have voted for Wilson's Albany for family use, but now for the Triomphe de Gand. It is larger and superior in quality, though not so productive.

Mr. Saunders. I have not seen much of it. It is not productive so far, and not better than native berries. It is late and long ripening.

E. B. Colman. Knox says it is the best in America. I set out plants last spring; they bore some good fruit the same year.

Mr. Morse. It is a hermaphrodite berry—flesh slightly red.

Mr. N. J. Colman. Knox is too far away to be authority here. I cannot say the berry promises well.

Such was the discussion on these two sorts, which was not very flattering to either of these puffed-up strawberries. The Wilson was "*sour*" and a "*cheat*;" the Triomphe de Gand "*not productive*," "*no better than native berries*;" and another member, in speaking of the cultivation of this fruit, said it was "*too soft*."

Mr. N. J. Colman, who seems to appreciate the Wilson, says it is "three times as productive as any." Now the Downer is said to be six times as productive as the Hovey. Taking the crop of the Belmont cultivators, the only positive data we have of the actual product of any crop of one acre,—except the Cincinnati or Kentucky growers, which is only 1800

quarts, according to a statement made by the Cincinnati Horticultural Society,—which is 4000 quarts, Downer's would give 24,000, and Wilson's, three times as productive, 72,000 quarts; quite a nice crop! Such statements look rich on paper; we should like to see the vouchers for the actual measurement in quarts or bushels. It is, however, really cheering to record some progress, and that is that the Missouri Society will not commend the Wilson for family use; it is only fit for the market—that is, it will do to sell—and we suppose by this that those who purchase in the market don't want good fruit. Are our Missouri friends unwilling the market should be supplied with superior strawberries?

AMERICAN STRAWBERRIES IN WASHINGTON.—Mr. J. Saul, of Washington, in writing about some of the English strawberries in the Gardener's Monthly, concludes as follows:—"Native varieties are as numerous as the foreign. My great objection to nearly all is want of size and flavor. Hovey's Seedling, take it all and all, I consider the best of all American strawberries. Whilst giving this as my opinion, I am fully aware in some sections of the country, and in some societies, it has been condemned. There may be soils and climates not suited to this valuable sort; but about our city, in the hands of intelligent cultivators, it has proved itself invariably ahead of all other native sorts. Fillmore (Feast's) is very good; large good color, rich and very desirable. Wilson's Albany can be recommended for its immense productiveness only, being sadly deficient in flavor."

We agree with Mr. Saul as regards the *want of size* in many of our American varieties, but when he speaks of *want of flavor* we think he is greatly in error, or else we have been sadly led astray in our taste. We cannot name one foreign strawberry which at all equals several of our American kinds in flavor. Indeed, all the former are coarse, watery, and more or less insipid—Rivers's Eliza, Victoria, and Triomphe de Gand, which Mr. Saul thinks a fine berry, especially so, and cannot be compared with Sir Harry, Sir C. Napier, or La Constante. We have cultivated and frequently exhibited every foreign strawberry of any reputation introduced the last thirty years, and have not found one which equals some of

our native seedlings. As regards size, no foreign strawberry surpasses the Hovey except Admiral Dundas, and this only under the highest culture.

HALE'S EARLY PEACH.—At a recent meeting of the Cincinnati Horticultural Society, Dr. Taylor of Cleveland spoke well of this peach, and said he had some last season much earlier, larger and finer than any other variety; they were ten days earlier than the Early Tillotson, and the earliest and best grower—fully equal to Early York. The tree was fine, healthy, thrifty and hardy. It stood the winter well.

DOOLITTLE OR BLACK CUP RASPBERRY.—This variety, which has been pronounced by some an improved accidental variety, and by others as nothing more than the common Black Cup improved by culture, is stated by some cultivators to be one of the most profitable sorts for market purposes, being entirely hardy, requiring no protection, bearing profusely, and, withal, an excellent fruit. We have no experience with it.

FLOWERS FOR DRY GROUND.

BY MRS. ISAAC CLEMENT, MECHANICVILLE, N. Y.

I have taken notes the past season that may be useful to others who live on high ground exposed to the burning sun, and wish to cultivate a few flowers. The plot of ground where these flowers grew is in front of the house, a space of ten feet wide, on the brink of the third terrace, some fifteen feet above the street; the ground is copiously supplied with cobble stone of all sizes; they have been taken out about one foot deep, and loam mixed with the surface soil. There had been box edging set, by a former owner, on both sides of the walk, from the steps of the terrace to doors in the rear of the house; it was all killed but about thirty feet protected from the west wind by the house. I made an edging of pinks, a dwarf-growing double pink, name not known, which does well, (only growing too fast), and blossoming profusely. Small Balsam firs, set out in the spring of 1856, are now eight

feet high ; Purple fringe, small well-rooted layers, set out at the same time, are seven feet ; Purple Persian lilac, five feet.

Herbaceous perennials that do well, are the following :— Iris, both white and blue, Fennel-leaved Pæony, Double Hollyhocks, White Valerian, Mullen Pink, Sweet Williams, Bee Larkspurs, *Salvia Tenorii*, *Veronica austriaca*, and *Spergula pilifera*, (the far-fetched lawn grass), as far as the hot sun and dry ground is concerned ; a small seedling plant turned out of a pot in July, 1861, grew to be a mass ten inches in diameter by fall ; it looked green when the snow went off in the spring, but by the time the warm rains and sunshine came, it looked as yellow as a piece of scalded moss, but the sun revived what little life it had left ; a new growth of green was seen making its way through the yellow mass, and soon covered the old coat with a green mantle ; it has spread much larger the past summer, but no doubt will have to undergo another scalding in the spring ; as it looked then, I should as soon think of seeding a lawn with chickweed ; it breaks easily, and does not seem constituted to bear the tramping that a lawn would get ; I often find pieces pulled out, as if done by the birds or dogs.

Annuals that do well are the Sultan's, Sweet Mignonette, Sweet Alyssum, *Viscaria oculata*, *Centaurea americana*, *Centaurea cyanus*, *Eschscholtzia*, *Portulacca*, *Antirrhinums*, *Nigella*, *Cosmea*, Larkspurs, *Nemesia*, Candytuft, *Lavatera*, *Petunia*, *Argemone*, *Datura*, *Zinnia*, *Ageratum*, *Phacelia*, *Polygonum*, *Gilia capitata*, *Campanula Loreii*, *Crepis barbata*, *Centranthus*, *Athanasia*, *Bartonea aurea*, *Annoda*, Upright Mignonette, Clary, red top, *Scabiosa*.

The foregoing kinds of flowers received no artificial watering ; the ground was well worked before planting, which was done early in May, and hoed occasionally when required.

THE GLADIOLUS.

WE were just about preparing an article upon the Gladiolus, which has been an especial favorite with us, and one we have cultivated extensively for several years, commencing

with the new hybrids, which have now become so common and universally admired, but the following hints which we find in our English contemporary, the Cottage Gardener, are so much to the point that we are relieved of that labor, and we present them to our readers as safe and reliable in the superior culture of this flower.

Mr. Standish, who has been so successful in their culture, resides at Bagshot, where the soil is a dark, very sandy peat, just suited to the rhododendron—in fact just such a soil as bulbs like—hence he has raised superior flowers. A good substitute for such a soil is leaf-mould, or very old and decayed manure, with sand when the soil is too heavy. The requirements are that the bed should be kept light and rich, and, above all, well drained.

The advice to shade the flowers is excellent; we have practiced shading with the best results, the flowers remaining in perfection two or three weeks longer.

A flower so truly splendid as the gladiolus has now become deserves and should receive the most careful treatment of the cultivator.—Ed.

Few flowers have made in so short a space of time such rapid progress in public favor as the Gandavensis varieties of the gladiolus; and as this is the best period for making or adding to collections, it may not be out of place, with the experience of the last two years before us, to give a few hints as to its management and as to the additions that may be fitly made to a collection of them. In so doing I look at them as a florist's flower, and shall not attempt to enter into the question of their suitability for garden decorations. There are other and better hands capable of doing this, and I do not wish to go beyond my own province.

The history of the flower has been so recently given by Mr. Beaton, who, *au fait* in this as in all matters connected with plants, many years ago began the pleasant taste of hybridizing, when the late dean of Manchester, Dr. Herbert, was so successfully pursuing his experiments amongst bulbs. The French were beginning to draw our attention to the bulbs, and new varieties were reaching us from the other

side, when our gracious sovereign gave a great impulse to their culture by taking them under her special patronage. Their being placed on the royal table led the frequenters of the court to follow the example set them, and a demand almost unprecedented in the history of flowers has arisen. Fortunately they increase very rapidly, and hence they are being generally distributed over the country, and before this unhappy war broke out in America were being eagerly sought for there, for one Paris firm this time last year had a large order from that country. Alas! now, muskets and minnie balls would be more likely to command a sale.

There was an enterprising nurseryman who had been long known as a successful hybridizer—Mr. John Standish of Bagshot—who was determined that our lively neighbors should not have all the benefit and glory; and as he had already been eminently fortunate in fuchsias—for Standishii was amongst the first of the new race, and as his hybrid rhododendrons had shown that he knew how best to obtain form and color combined with vigor of constitution—he set himself to the task. In this he has succeeded beyond his expectations. Both last season and this have shown that he has not only equalled but distanced, especially in the matter of form, the foreign varieties. Souchet has been the most successful raiser there, and each year some of his varieties are introduced to us through the medium of the well-known Paris firm of Thibaut & Keteleu, of the Rue du Charonne. But I think we shall not have need to go across the water to supply our gardens.

With regard to form, for which I am a great stickler, regarding it as the first point in a flower, Mr. Beaton says the florists will never be able to make a circular gladiolus. Perhaps not; but still there is a model which I think we may strive to attain to. As the bloom is composed of two triangles, we must look that the petals forming them be arranged regularly, and that they be broad, and not pointed, narrow, or jagged in the margin, and I believe that the more circular the throat of the flower is the greater will its beauty be.

Then substance must be obtained. We have it now in some of the varieties; and as they become plentiful, flimsy

flowers will be discarded. Nor do I think those kinds which partake too much of the oppositiflorus blood will last in favor long. They may many of them be very beautiful in color and even in shape, but they are not the thing for a box of cut blooms: and therefore when we can get those which show entirely *enface*, we shall discard those *dos-a-dos* gentlemen, or ladies, as the case may be; and I doubt not, as the flower is so tractable and exhibits such an endless variety of colors, shades, hues, tints, stripes, bars, &c., that by-and-by those only which fulfil the conditions will be retained. In the meantime, as the Irish saying runs, "We musn't throw away dirty wather till we can get clane."

I would also add, as a requisite, that the flowers should be closely set together. If too far apart the beauty and symmetry of the flower are spoiled. These requirements may seem to some *exigeant*; but I am sure in a few years' time that we shall find many flowers now in repute discarded, because they do not possess qualities which now we are not so particular about, simply because the flower is a new candidate for the public favor.

Their cultivation and management has had some light thrown on it by the experience of the last two or three years. Mr. Standish, finding that they throve so well in the light sandy soil of Bagshot, came to the conclusion that they did not like manure; and even recommended, where the soil was too rich to impoverish it by burning some. He now, however, thinks differently, and advises the addition of well-rotted manure to the bed. They will, in fact, do in any good, rich, light garden soil, but are impatient of bad drainage; and clay soil, therefore, will hardly grow them successfully. I would myself recommend that they be grown as carefully as we should grow a bed of tulips or ranunculuses, for they are assuredly worthy of our care.

The bed ought to be prepared now. The soil should be well turned over and exposed to the influence of the weather; and if it be not sufficiently rich, the addition of some well-rotted manure may now be made. In March or April, as the weather may best suit, the bulbs should be planted. Drills should be drawn across the bed (one 4 feet wide I should

consider a good size), at a distance of 6 inches apart. The bulbs may be placed about 6 inches apart in the row and 3 inches deep, placing some silver sand under and over each bulb. Where the sorts are named the better plan would be to number them as in a tulip-bed, and arrange them as to height when this can be done. They will require very little attention during the summer, save that which every gardener must consider of main importance—weeding and keeping the ground well moved about. When the flower-stems begin to rise, stakes should be placed, as high winds are very apt to twist them about and either loosen them or break them off. If any one have an awning either for tulips or picotees, I should say by all means put it over the gladiolus-bed. Do not let it down save in heavy rains or during scorching sun.

But I am quite sure they are flowers that will show the advantage of taking this trouble with them. And if the tulip-awning be moveable it may as well be there as put by; and for this reason I should recommend the bed to be 4 feet wide, as that is the orthodox width of a tulip-bed.

When the bloom is over and the foliage begins to decay the bulbs may be taken up; and their drying is a matter of some importance. They do not require, as some others, to be dried off gradually, as they then are apt to contract mildew, but it should be done quickly. I have said that it is a very good plan to place each variety in a small flower pot, and stand them at the far end of the greenhouse flue, where the heat is moderate. They thus dry rapidly, and may then be placed in drawers, as tulips are, or else in paper bags; and kept in a cool dry place until planting time comes round again.

As to *sorts*, the choice will depend on the pocket of the purchaser; and I therefore give three lists—the first comprising cheap varieties, mostly of foreign raising; the second, of more choice and new varieties of French origin; and the third, a selection of Mr. Standish's best flowers:—

LIST NO. 1.

Brenchleyensis, deep vermillion.
 Couranti fulgens, crimson.
 Calandulaceus, salmon rose.
 Don Juan, red.

Endymion, rose, lightly tinted with violet.
 Hebe, pale flesh mottled with carmine.

Galathée, flesh mottled with crimson.
 Fanny Rouget, rose, lower petals deeper.
 Mathilde de Landvoisin, white, striped with crimson.
 Monsieur Vinchon, rose, striped with deep salmon.

Ninon de l'Enclos, carnation rose.
 Osiris, purple and white, curious.
 Othello, light orange red.
 Rebecca, white and lilac.
 Sulphureus, sulphur.
 Vesuvius, deep glowing red.

LIST No. 2.

Achille, deep red, marked with white in the centre of each petal.
 Berthe Rabourdin, pure white, spotted with crimson.
 Docteur André, bright orange.
 Edith, carnation-striped.
 Eldorado, yellow, chocolate feather and stripes.
 Eugène Domage, deep crimson, dark throat, one of the richest in color.
 Isoline, carnation, violet spots.
 La Quintinie, bright light orange.
 Monsieur or Madame Leséble, white, spotted with violet rose.

Mademoiselle Marsault, flesh-white, carmine and violet spots.
 Napoleon III., bright scarlet-strip'd.
 Princesse Clothilde, salmon rose.
 Princesse Mathilde, light rose and carmine.
 Rembrandt, deep scarlet, very bright.
 Raphael, deep red vermilion.
 Solfaterre, sulphur, with brownish feathers, nearly yellow.
 Solferino, orange scarlet violet, carmine spots.
 Victor Verdier, bright red.
 Volcanic, scarlet, velvety purple.

LIST No. 3.

Agnes, pure white, rich crimson in the centre of each petal, forming a star.
 Aurelian, scarlet, deeper in the throat.
 Basil, carmine, white centre, and deep crimson blotch.
 Clara, white with yellowish tinge, beautiful light crimson star.
 Cordelia, white, ruby throat and feathers.
 Dr. Hogg, deep crimson.
 Goldfinder, lemon, buff throat, pure marking.
 Ivanhoe, dark scarlet.
 Lady E. Seymour, pale buff, with pinkish tinge.
 Lemonade, yellow striped in each petal.

Minerva, clear white, with pink feathers and throat.
 Mowbray Morris, scarlet centre, damask markings.
 Mrs. Dombrain, blush, striped with lake and crimson lip.
 Robin Hood, scarlet, violet throat.
 Rosenberg, deep scarlet, blood color.
 Samuel Weymouth, brilliant scarlet, yellow throat.
 Thuza, white, violet feathers.
 The Caliph, creamy rose, golden tinge.
 Tom Moore, crimson, with violet crimson feathers.
 Viola, delicate lemon, purple feathers.

I may, perhaps, as a florist be too sanguine, but I believe we shall yet see flowers surpassing in beauty even these; and

I cannot but think that if the public taste is roused to expect it, the greater care will be exercised by hybridizers to obtain form, color, size, and substance. I may, perhaps, add that those who may desire to have a good and cheap bed, may do so very effectually by procuring some of the mixtures of Mr. Standish's seedling flowers, from which I had a very handsome selection the past season.

FLORICULTURAL NOTICES.

NEW SHRUBS AND PLANTS FROM JAPAN.—Mr. Fortune, whose visit to Japan we have heretofore alluded to, has returned to England, from Pekin, bringing with him quite a number of plants of undoubted hardiness in Great Britain, and probably hardy in our climate; for in that bitterly cold city, and on the surrounding hills, nothing can survive the winter except frost-proof species. Dried specimens, placed in the hands of Dr. Lindley, have enabled him to give the following list of new things:—

Among them is a *Quercus sinensis*, a fine evergreen oak, with leaves like those of a Sweet chestnut: it is also used as a dye. There is also an extremely pretty two-leaved *Pinus*, with small elegantly curved cones, and very distinct, slender leaves: a couple of *Biotas*, apparently distinct from the Chinese *Arbor vitæ*s, and at all events different from the varieties of that species now in cultivation. A very nice-looking *Vitex*, like our *Agnus castus*, but with handsomely cut leaves, is also in the collection; and finally, an *Artemisia* has been brought from Tein-tsin, with stems as thick as those of a tree rose, and used by the Chinese to graft chrysanthemums; by aid of this species we understand that little standards of that fine plant are easily prepared.

The remarkable set of new plants shown last summer in the garden of the Royal Horticultural Society, by Mr. Standish, announced that Mr. Fortune had been busy in Japan. We have now before us evidence that some very striking species have been obtained in that country, besides those which

were then introduced. There is an exceedingly pretty new evergreen Holly, looking almost like a Tree Box, or an evergreen Privet: a superb Primrose, with flowers of the color of *Azalea amæna*, arranged in tiers one above another: two fine Weigelias, new to gardens, one of which is the *W. grandiflora* of Siebold; another, *Skimmia*; the Scarlet *Lychnis senno*; a *Spiræa*, resembling *Ulmann*, but with deep crimson flowers; and a beautiful *Deutzia*, with double pink flowers. We also observe the *Aucuba japonica*, with rich crimson berries as large as olives; now that the male of this plant has been introduced, we may hope to see the bushes already in the country, all of which are female, loaded with their glowing fruit.

As soon as we have certain information as to which of these and other varieties are safely established, we shall introduce them to our readers in full detail. All that we can do for the present is to announce their arrival.

NEW JAPAN LILY.—Mr. Standish showed, at a late meeting of the Royal Horticultural Society, a small specimen of a Japan lily, pale yellow, richly spotted with dark brown. The stem, which was furnished with long narrow leaves, stood about one foot and a half high, and the petals of the flower reflexed like those of *Lilium canadense*. When well grown and flowered it will doubtless prove very ornamental.

NEW AGAVE OR LITTÆA.—M. Roezl gives the following account of the discovery of a new Agave of colossal dimensions in Mexico. Proceeding towards Tejulpico, near the village of Spirito Santo, he ascended a tolerably high mountain, known by the name of Sierra de Spirito Santo, towards which his fancy led him, though it was said that nothing could grow there. In this place the sky was always clear, the heat intense, so that the ascent is no little matter. However, nothing daunted, I started at an early hour in the morning, and reached the top by 11 A. M. I was repaid for my exertions by finding a capital plant. The king of all the Agaves and all the Littæas was enthroned in this solitude. At first I thought I saw an Agave before me, for its appearance was altogether like that of *Agave fiffera*; its leaves grew crosswise, covered with white threads, producing a fine effect when, from age, they had turned red. Two specimens

were in full flower; from a third I was able to gather seeds. However, I convinced myself it was a *Littæa*, to which I gave the name of *Littæa Rœzlii*, in honor of my aged father. The genuine *Agave* and *Littæa* are easily distinguishable by their inflorescence. The *Agaves* have the flowering stem branched like a kind of *Lustre*; the *Littæas*, on the contrary, have the stem straight, without any kind of branching. In Europe, mistakes are often made with respect to the nomenclature of these plants, to which many names are generally assigned. Thus they say *Bonapartea juncæa*, instead of *Littæa juncæa*. The *Bonapartea gracilis* of gardens, does not even belong to the genus, but to *Dasylirium*, as does *Pincenectitia*. *Agave fiffera*, on the contrary, is a true *Agave*. I collected, with all possible care, the seeds of this precious plant. I also found plants six feet high, covered with seeds, which I took for a new species of *Zinnia*, and a very beautiful *Inga*, with very large heads of bright scarlet blossoms.—(*Revue Hort.*)

621. RODA'NTHE MANGLE'SII, VAR. MACULA'TA. MANGLE'S SPOTTED-FLOWERED RODANTHE. (Compositæ.) Australia.

A half hardy annual; growing a foot high; with dark rose and purple flowers; appearing in summer; grown in peaty soil; increased by seeds. *Bot. Mag.*, 1862, pl. 5290.

A new variety of the well known and beautiful *Rodanthe*, which forms one of our prettiest annuals. This new variety, introduced by Mr. Thomson from Western Australia, is similar to that species, but is far richer colored, "the flowers being twice as large and the disc yellow; the inside of the involucre ray is bright rose color, dark purple at the base, and the rest of the involucre scales, externally, of a satiny pale pinkish white." Another variety, called *sanguinea*, was introduced at the same time, but this is the finest of the two. It should have a peaty soil. (*Bot. Mag.*, Jan.)

622. MALORTIEA GRACILIS Hend. SLENDER MALORTIEA. (Palmeæ.) Guatemala.

A palm; growing two feet high; with small foliage; increased by offsets; grown in light rich soil. *Bot. Mag.*, 1862, pl. 5291.

A very dwarf and graceful palm, growing not more than two feet high, with leaves on slender petioles, little more than a span long and one broad, producing flowers scattered along

slender branches, which are yellow. For hothouse culture, its small size and neat habit will render it highly ornamental and desirable. (*Bot. Mag.*, Jan.)

623. *ANEMIOPSIS CALIFORNICA* Nutt. *CALIFORNIA ANEMIOPSIS*.
(*Saururæ.*) California.

A perennial, hardy, or half hardy plant; growing one foot or more high; with white spotted flowers; appearing in summer; increased by division of the roots; grown in light peaty soil. *Bot. Mag.*, 1862, pl. 5292.

A remarkable plant, first detected by Nuttall at San Diego, California, and afterwards by Douglas, and later by Fremont in his California tour, but living plants were first raised in England from California seeds. It has a perennial fusiform root, with a few roundish-oval leaves on long and erect stems, terminated with a spadix of hermaphrodite flowers without any perianth, but surrounded with six spreading white bracts, of which the three inner are spotted with red, quite delicate and pretty.

Whether it comes from far north enough to prove hardy in our climate, remains to be proved; if so, it will be an addition to our gardens. (*Bot. Reg.*, Jan.)

624. *STANTHOPEA WARDII* Loddiges. MR. WARD'S STANTHOPEA. (*Orchidæ.*) Guatemala.

A stove orchid; with yellow spotted flowers. *Bot. Mag.*, 1862, pl. 5269.

A superb species, with very large orange-yellow flowers covered with small brownish spots, with a dark velvet purple spot at the base of the lip. It grows on blocks of wood. (*Bot. Mag.*, Jan.)

General Notices.

CULTURE OF IXIAS.—The best way to grow *Ixias* of all sorts is to have them potted at the very end of September, in rough peat and sand, in a medium state of moisture—a state neither wet nor dry, and that state to be kept so till the leaves are two inches long above the pots, and the pots not to have a drop of water by hand all the time if it lasted three months. The best way to keep the pots and their contents in that medium state is to plunge them to the rim in sand or sifted ashes, or some loose refuse, but each and all of them, the plunging materials, to be also in a medium de-

gree between wet and dry. Then with the moisture of the atmosphere during October, November and December, the pots, or rather the bulbs, would and should not need any water whatever. The best place for *Ixias* of all sorts is a shallow coal-pit, a turf-pit best of all; and all the *Ixias* want is just to be kept from frost and no more, and to have lights off every fine and dry day during the whole winter. When the *Ixias* show for flower, they do it like wheat in the field; then it is time to raise the pots, to wash them, and to stage them in a dry greenhouse, where they will bloom from the middle of April to the end of May, then go to rest till next potting time, and they should be kept in the same balls till then.—(*Cottage Gardener.*)

Massachusetts Horticultural Society.

Saturday, Feb. 1.—An adjourned meeting of the Society was held to-day, the President in the chair.

The President, Messrs. Strong, C. M. Hovey, Wight and Wilder were appointed a Committee to prepare a petition to Congress in regard to a duty on trees and shrubs.

Col. Wilder, from the Finance Committee, reported that they had settled with the Mount Auburn Cemetery as follows:—

Total amount of sales in 1861,	\$16,229 41
Deduct certain expenses,	184 00
	<hr/> 16,045 41
Deduct salary of superintendent, &c.,	1,400 00
	<hr/> \$14,645 41

Society's proportion one quarter, \$3,661 35, which amount had been received and paid into the Treasury.

Mr. F. Parkman, from a Committee appointed for that object, made a report in relation to prizes, medals, certificates of merit, &c., which was referred to the Executive Committee.

Adjourned one week to Feb. 8.

Feb. 8.—An adjourned meeting—Vice President Wight in the chair.

The report of the Committee in relation to a duty on trees, &c., was made by Mr. Strong, and after some-discussion it was laid upon the table.

On motion of Mr. A. C. Bowditch, the following resolution was adopted, with but one dissenting vote:—

Resolved, That it is with regret we see any personal allusions reflecting on any member of the Massachusetts Horticultural Society, contained in the Flower Committee's Report, and that we protest against that portion of the Report contained in page 36, in relation to a Heather, and that this protest be entered upon the records of the Society, and published in the Transactions for the ensuing year.

Adjourned three weeks to March 1.

Horticultural Operations

FOR APRIL.

FRUIT DEPARTMENT.

March, without any very warm or cold days, has yet been cool throughout, and the snow now lies upon the ground in this vicinity to the depth of six or eight inches. April is the busy month of the year, and as soon as the ground will admit, preparations should be made for forwarding all kinds of work. Trees should be planted and pruned, vines uncovered, ground trenched, &c. Every moment should be improved at this season.

GRAPE VINES in the early houses will now be ripe, and the only attention required will be the proper airing of the house to preserve the crop. Vines in ordinary graperies will now be in bloom, and should have good attention. Maintain an even temperature, stop all superfluous shoots, and tie in the laterals. Vines in the cold house should be uncovered, and loosened up to the rafters: air freely in warm days, that the vines may not be started too rapidly. Syringe often and close the house early in the afternoon. Vines in pots, now growing freely, should have manure water occasionally. Vines in the open air should be uncovered and tied up to the trellis. Grafting may be done now.

PEACH TREES in pots, now swelling their fruit, will require more liberal watering.

ORCHARD HOUSES will need attention; air abundantly, and preserve a uniform temperature.

GRAFTING should be done this month.

SCIONS of fruit trees should be cut immediately, if not already done.

RASPBERRIES should be uncovered and tied up to stakes; manure and dig the ground lightly.

STRAWBERRIES should be uncovered, and as soon as the ground is in good condition it should be raked or hoed; no digging should be allowed. Prepare ground for new beds next month. It is the best season to plant.

CURRENTS AND GOOSEBERRIES should be pruned immediately.

CANKERWORM GRUBS should be looked after. Tar or otherwise protect the trees.

FRUIT TREES of all kinds should now be cleaned and washed with whale oil soap.

FLOWER DEPARTMENT.

The weather during March was cool and cloudy for the greater part, and plants are less forward than usual. The greenhouse will consequently this month present unusual attractions. The Azaleas are now in full bloom, and the Pelargoniums begin to show their flowers. A final arrangement should now be made for the spring. Remove all plants out of flower to frames or a cool house, and give an abundance of room to those making their growth or coming into flower. Continue to propagate all plants wanted for bedding out, and harden off in cold frames.

PELARGONIUMS will now be objects of the greatest interest. Tie into handsome shape all plants not yet fully prepared, and clear off all dead or decaying leaves. Turn the plants round often, and air liberally at all times. Water with liquid manure after the flowers begin to open.

AZALEAS, done flowering, should be pruned in and removed to a warm house, where they can be freely syringed till well broken. Plants coming into flower should be shaded from the hot sun, and have liberal waterings, using weak liquid manure occasionally.

FUCHSIAS should be encouraged in their growth by repotting, syringing and a more moist atmosphere; tie the leading shoot to a straight stick, and pinch in the side shoots to produce bushy plants.

CAMELLIAS, now making their growth, should be syringed every day, and have more liberal watering. Shade from the hot sun; prune in straggling plants.

CALCEOLARIAS AND **CINERARIAS** for late flowering should be repotted. Keep on a cool shelf near the glass, and fumigate often to destroy the green fly.

CHRYSANTHEMUMS should be propagated from cuttings.

ACHIMENES AND **GLOXINIAS** should be potted and placed in the warmest part of the house.

CALADIUMS AND **BEGONIAS** should be repotted.

CACTUSES should now have more liberal supplies of water.

HEATHS should be removed to frames, shading them for a few days from the hot sun.

BEDDING PLANTS of all kinds should be repotted.

GERMAN ASTERS and other seeds should now be planted in an old hotbed.

TUBEROSES AND **AMARYLLISES** should be potted and placed in a hotbed.

LAURISTINUSES should be pruned into shape before making their growth.

CYCLAMEN seeds may be planted now.

DIANTHUS HEDDEWIGI—seeds of this fine pink should now be planted.

FLOWER GARDEN AND SHRUBBERY.

The walks, the lawn and the shrubbery will now require especial attention, as nothing adds more to the pleasure of a garden than neat and dry walks in early spring. Rake and roll as soon as the weather will admit, and clean the lawn and shrubbery. Remove all covering from the plants in the flower garden, and rake and clean the beds. Prepare ground for planting.

CARNATIONS AND **PICOTEEES** should be planted out early, so as to get a strong growth.

TULIP, **HYACINTH** AND **JULY BEDS** should be uncovered. Rake and clean the surface.

DAISIES and other plants, wintered in frames, should be removed to the flower garden.

PÆONIES should be transplanted now.

HERBACEOUS PLANTS may now be divided and reset.

ANNUAL SEEDS of all the hardy kinds should be planted—such as Dwarf Larkspur—where they are to bloom.

HOLLYHOCKS may be transplanted. **TRITOMAS** may be planted.

THE HISTORY AND PROGRESS OF BREEDING NEW PLANTS.

HAVING in our last number briefly recorded the progress of American cultivators, in the production of new plants, during the past quarter of a century, we now turn to some account of the cross-breeding and fertilization of plants in Great Britain, as we find it noted by a recent writer, who has practically aided in the advancement of this highly interesting branch of gardening. While the subject is fresh in the minds of our readers, it will not only become one of deeper interest, but receive more attention than if left to a later period as opportunity may enable us to gather the materials for this object.

In reality, cross-breeding and hybridization had scarcely become a subject of general interest abroad much before it attracted the attention of our own cultivators. Setting aside the early experiments of Mr. Knight and the Rev. Mr. Herbert, in advance of others, the former of whom devoted his time to the fertilization of fruits, there were few persons who had attempted the production of new plants by cross-breeding or fertilization prior to 1830. It is since that period that British cultivators have accomplished so much, and within less than half that time that their productions have attained a highly improved and really valuable character.

During the palmy days of the London Horticultural Society, when Douglas, Hartweg, Fortune, and other botanical collectors, distributed over the whole globe, were continually enriching the gardens of Great Britain with innumerable rare and beautiful plants, public attention was justly absorbed in these new acquisitions, many of which were truly remarkable; but with the withdrawal of those collectors from their duties, when the society became embarrassed, there was soon a dearth of novelties, and it was then that attention was directed more seriously to the availability of fertilization for the accomplishment of good results. These efforts were crowned with success, and in a brief period thousands of seedlings were brought before the public, many of which pos-

sessed no merit, while a few were such decided improvements that they only increased the demand for other and similar achievements. The lesson was not lost; both amateurs and practical men entered zealously into the work, and the pages of our Magazine are the best record of the results of their labors. Since the publication of the first volume every really fine plant has been noticed or described.

The continental florists and cultivators were not behind their English neighbors, and though we have not such available means of ascertaining their progress in breeding plants, we know that many of the most *recherché* things are of French or Belgian origin. In camellias, the Italians, from their delightful climate, where the plants flourish as hardy shrubs and bloom in perfection in the open air, have made rapid advances, and at least half, if not two-thirds, of the new varieties introduced within the past twenty years have been raised by a few amateurs who have devoted their time and skill to this object. Yet, notwithstanding such favorable circumstances, the most distinct and beautiful camellias yet produced are the seedlings of our American cultivators, showing that even climate is no match for properly directed skill, or perhaps some may call it luck, in the production of new plants.

While most of our popular plants have been subjected to the skill of the hybridizer, a few seem to have engaged the exclusive attention of both the English and continental gardeners. The improvement of the pelargonium, till within a few years, was wholly confined to the English amateurs, who brought out its present splendid qualities. Recently the French have given it their attention, and commencing with an entirely different parent, the old *diedematum*, have produced the new and gorgeous spotted flowers which British florists affected to ignore at first, because not quite up in form to some of their best flowers; but the novelty of these spotted kinds, and their glowing colors, soon secured them prominence, and they are now indispensable in a collection.

On the other hand, the pæony, both tree and herbaceous, was a particular favorite with the French, and MM. Guerin, Caillot, Lemon, and others, as well as Parmentier, Makoy,

and Rinz, of Belgium, made them especial objects of improvement, and raised some truly wonderful varieties, which has given a character to this flower second scarcely to any other. The gladiolus, too, has been the pet of the French, who have had the satisfaction of seeing this magnificent flower attain a world-renowned fame. The carnation and picotee are almost exclusively English flowers, and the rose exclusively French.

These are but a few of the plants which have undergone improvement by direct cross-breeding or hybridization, and they are noticed to show what attention directed to any one object will accomplish. England, France, Belgium, Italy, and America, can share alike the honors that have been gained, and while each may claim prominence in some particular plants, all must share in the great advancement that has sprung from a generous rivalry.

The writer of the article we have alluded to, is Mr. D. Beaton, one of the contributors to the Cottage Gardener. An old practitioner, he has been a close observer of the progress of cross-breeding and hybridization, and has perhaps done more in the production of hybrid geraniums than any other English cultivator. We have not room for his entire article, but we copy that portion in relation to our subject, as a matter of record for future reference, and shall endeavor to find room for the remainder in another number:—

It is now a plain, positive, well-known fact that the hybridizers of the last generation carried their rules of secrecy beyond the bounds of strict honesty. They originated seedlings by their mystic art which they sent into cultivation under the sanction of the highest botanical authority of their day as genuine wild species which had been introduced from foreign parts in the usual way. That was before people discovered the value of cross-breeding, or the way to improve new races of plants. All that has been said of cross-breeders—and all true florists are nothing else in that line—is that they kept their art a secret from the rest of the world; while the hybridizers took the advantage which their branch of the subject gave them to hoodwink their customers, and at the same throw to put the cultivators of botany off their guard so

far as led them to publish several hybrid plants as genuine species.

That was another great step backwards; the first being the one which prompted the belief in the possibility of making mule plants—a power which has not yet, at all events, been revealed to man. The responsibility of the doctrine of mulification, to make a new word, rests, assuredly, on the same shoulders which carried the mystery of hybridization to the point of dishonesty. But then there is this to advance in their favor for deceiving the botanists on the subject of muling—they, the hybridizers, were deceived themselves. In their branch of the business nothing is more common than the production of barren seedlings in some of the families then under crossing, and their operation extended at that time no farther than the crossing of species, and, therefore, they could not know that barren seedlings could be effected, save between two of their species, and they must have been in earnest in their belief on that score.

Here, then, are a moral and a practical illustration of the necessity for keeping the relative labors of the cross-breeders and the hybridizers apart, and not mixing them up loosely in writing or in conversation. One whole generation has been deceived into the belief of the doctrine that mules can be obtained among plants by manipulation, through the baseless inference from the working or the hybridizing of a few species taken from a very small number of genera, of which the heath, the geranium, and the lobelia are the three principal defaulters. You might almost put the names of all the old heaths, geraniums, and scarlet lobelias on slips of paper into a hat, shake it, tumble them out on the table, and take any two of each of them to obtain a mule seedling, or a plant which is altogether barren. But now-a-days the very same result is produced without the union of kinds at all; yet the hybridizers of the last generation must not, therefore, be stigmatized, seeing they had no knowledge of the facts which cultivation and crossing for the improvement of races have brought to light since their day. Nor must we yet look for the universal disbelief in the doctrine of muling amongst our seedlings.

It is strange but yet true, that it is less easy to give up a

wrong idea than to adopt a new one, whether it be right or wrong. But those who will run the race for first-class seedlings during this next season, should well understand the conditions of the subjects for their experiments, and the results which practice has proved to be best, and avoid the errors which the same practice has shown to be untenable. Cross-breeders should also know the biography, as it were, of all the families which have hitherto been crossed successfully. The next step would be to get a clear insight of so many of the families, or parts of families, which are reputed to be fit subjects for the hybridizer. For when you come to new subjects for crossing, the hybridizer must first have his turn at them ere they are the proper, or rather the property of the cross-breeder. Who is able, however, to give us the biography of all the families which have been successfully crossed? The first thing a biographer in this line would meet with is very perplexing indeed. There are so many apocryphal genealogies given by continental writers, that a conscientious man can hardly bring his mind to believe them when they state the truth, and in the home process we are almost all of us bound down to the merits of a few popular plants. There are not over ten or a dozen families to which a British crosser would think it worth his time and trouble to experiment upon; and I have so few materials to enable me to give an outline of such biography, that I can merely break the ice to-day, and trust to the good offices of the gentlemen who have taken part and interest in our discussions on this subject, to fill up the schedule from time to time as the spirit of the times moves them.

It is not much over eighty years since the first experiments in crossing plants began in Germany, by Kölreuter, who made known his success and failures in the "Acts of the Petersburg Academy." He is, therefore, considered as the father of hybridizers, for cross-breeding is of more recent date. The plants with which Kolreuter was successful were principally of the genera of *lycium*, *digitalis*, *nicotiana*, *datura*, and *lobelia*. Mr. Knight was the first cross-breeder in England, and he also made some experiments on hybridizing. All his experiments on fruit trees, with a few exceptions, were on the cross-breeding model. His seedlings between the Siberian

Crab and some apples, were hybrids or half hybrids. The rest of his seedling apples and pears, as far as I can recollect, were merely cross-bred, and he is certainly the father of cross-breeding, as Kolreuter was the father of hybridizing. Dr. Herbert was in the field as both a hybridizer and cross-breeder nearly as soon as Mr. Knight, and the reports of their experiments were first given to the world through the "Transactions of the Horticultural Society of London."

Dr. Herbert was the first person who discovered the fact that mules or barren seedlings were more numerous from the hybridizing process than from cross-breeding, and it is over a quarter of a century since he refuted the doctrine of mule plants altogether, and showed that mules first tumbled in from the union of two of the species nearest in affinity, and, secondly, from flowers which were not crossed at all; so that the refutation of that doctrine does not rest with me—I only confirmed it by my own practice.

Mr. Knight was the first person who advanced the doctrine or dogma, that a fertile cross was proof direct that the two parents were of the same species; and he assumed as a consequence that a sterile offspring was nearly conclusive evidence that they are of different species. Both these opinions have since been conclusively proved to have no foundation whatever.

Dr. Herbert was the first person who held the opinion that the production of any intermixture amongst vegetables, whether fertile or not, was presumptive evidence that the parents were descended from one common stock, and showed that they were referable to one genus. This opinion has not yet been practically refuted in one single instance, and as a sequence, we cannot have a real mule plant yet in cultivation. Show me a barren plant, the offspring of any two members, or species of two distinct genera, and then I shall have seen a real mule plant for the first time. The botanical world was, at that time, much divided on these intricate questions, which are simple enough in these days through a wide extension of the more popular branch of crossing flowers—that of cross-breeding; but in order to clear the ground for the investigations of the biographer of cross flowers, it is necessary these

diverse opinions should be traced to their origin, to their effects on the minds of men, and to their having been proved to be right or wrong by subsequent experiments.

But I have another object in view in thus putting them—to see if they or any such opinions are yet held, or are thought to be fit subjects for discussing now; and every one is invited to add his or her views on every one of these subjects, if they are backed by trustworthy experiments which go to prove the part or side taken by the writer. Mere opinions are of little use in such questions.

One more vexed question, and I am through with this part of the subject. What is the analogy between plants and animals in their capacity to breed crosswise within certain limits? That was a bone of contention in science between forty and fifty years back. All the ologies on living things, and more particularly ornithology and zoology, would need to be recast and remodelled before the question could be satisfactorily answered, was about the sum total of that controversy. Some said that certain birds and animals belonging to two different genera had crossed, and why not plants so far apart? No, said they on the other side; you must begin first and revise your lists of genera, and then if ever this subject is fathomed, we shall see if a perfect analogy between plants and animals is apparent, not otherwise. The meaning of all that was, that the classification of the various families was not quite according to nature, that nature had no mules, and if you spoke of the Spanish mule you were told the parents came of one stock.

The possibility of acclimatizing plants was then all but the universal belief. Now, we acknowledge and have confirmed that the only mode of acclimatizing a plant is to change its whole constitution through the process of crossing in-and-in with a hardy kind, which, by judicious selections from numbers of seedlings may be done, and still retain the looks of the original kind.

The remainder of the article is devoted to a notice of the several plants which have occupied the attention of cultivators, during the past thirty years.

HALF HOURS WITH OLD AUTHORS.

BY WILSON FLAGG.

JOHN EVELYN.—The readers of the Magazine have been already entertained with a notice of Evelyn's *Sylva*, a work of very singular merit, both as a book on Natural History and as a literary performance. His "*Kalendarium Hortense*" is an exceedingly rare work, not more than two or three copies probably existing in this country. The copy before me was published in London, 1678, entitled "*Kalendarium Hortense; or, the Gardener's Almanac, directing what he is to do Monthly throughout the year; and what Fruits and Flowers are in Prime.*" The book is dedicated to Abraham Cowley, the poet, whom he congratulates on his love of gardening and rural pursuits, on "the sweet evenings and mornings, and all the day besides, which are his. And the Sun in his Garden gives him all the desires and all that he would enjoy: the purity of visible objects, and of true Nature, before she was vitiated by imposture or luxury." He adds: "You gather the first roses of the spring and apples of autumn: and as the philosopher in Seneca desired only bread and herbs to dispute felicity with Jupiter, you vie happiness in a thousand sweet and easy diversions." It is curious to note the enthusiasm of these old English authors, whenever they discourse upon the pursuits of gardening and the pleasures of country life.

Our author remarks, that, "as Paradise, though of God's own planting, was no longer Paradise than while the Man was in it to dress it and to keep it; so neither will our gardens, remain long in their perfection, unless they are also continually cultivated. But when we have so much celebrated the life and felicity of an excellent gardener, as to think it preferable to all other diversions whatsoever; it is not because of the leisure which he enjoys above other men;" for he believes that there is not amongst men a more laborious life than that of a good gardener; but because his labor is full of tranquillity and satisfaction, and such as contributes to health and longevity. It is a condition "furnished with the most innocent, laudable and purest of earthly felicities; and such

as does certainly make the nearest approaches to that blessed state, where only they enjoy all things without pains." Nothing excellent is to be obtained without this labor: a gardener's work is never at an end; it begins with the year and continues to the next. He prepares the ground, and then he sows it; after that he plants, and then he gathers the fruits, but in all intermedial spaces, he is careful to dress it; so that a gardener is not only to reckon upon the loss of bare twelve hours, but of a whole year, unless he perform what is at present requisite in its due period. And therefore is such a monthly notice of his task as depends on the signs and seasons, highly necessary."—"How precious the time is; how precipitous the occasion; how many things to be done in their just season; and how intolerable a confusion succeeds the smallest neglect!"

The author cautions his readers against the notions of certain astrologers, who would tell them that all will be lost, and their pains tend to no purpose, unless the sowing and the planting, the cutting and the pruning, be performed in such and such an exact minute of the moon! There are certain indications which a prudent gardener will carefully watch, and he must take advantage of times and seasons, as instructed in his volume; but there are certain "punctillos" in which he has no faith. A calendar for the climate and latitude of England is of but little use to a cultivator in New England, except as a matter of curiosity, when he would observe the great differences that exist in the climates of these two countries. I shall, therefore, simply notice some curious observations of the author, which may be read with both interest and profit.

As it is in winter that the gardener must be chiefly diligent about preserving his more tender, rare, exotic, and costly shrubs, plants, and flowers; he appends to his work a catalogue of all such as, according to their different natures, require more or less indulgence; and these he has divided into three classes, corresponding with the modern arrangement into tender, half-hardy, and hardy plants. This first class includes plants "least patient of cold, and, therefore, first to be set into the conservatory, or other ways defended."

Second, "plants enduring the second degree of cold, and accordingly to be secured in the conservatory." Third, plants "which not perishing, but in excessive colds, are therefore to be last set in; or rather protected under mattresses or slighter coverings, abroad in the earth, cases, boxes or pots."

Our readers need not be informed that Great Britain lies ten degrees farther north than the New England States; and the difference of climate is attributable partly to the insular situation of Great Britain; but chiefly to the milder temperature that prevails on the western coast of the two grand divisions of the earth in the northern hemisphere, compared with the temperature of the eastern coast of these two grand divisions. Hence, the western coast of North America possesses a climate as mild and genial as that of countries in the same latitude in Europe. Our New England gardeners would be a little surprised at such advice as the following, if it were to guide their operations in this country. In January, the author says: "Trench the ground, and make it ready for the spring: prepare also soil and use it when you have occasion. Dig borders, and uncover the roots of trees, where *ablaqueation* is requisite. Plant quicksets and transplant fruit trees, if not finished." Such advice as this would answer for April in this country, the present year excepted.

Among the flowers which are in their prime, during the month of January, he mentions "Winter aconite, some anemones, winter cyclamen, biennial hyacinth, oriental jacinth, Leonatine narcissus, hepatica, primroses, laurustinus, mezereon, pruecoce, tulips." I suspect that some of these were forced into bloom by artificial heat; for Howitt, in his calendar for January, mentions only the following as coming into bloom in the open air in Great Britain, during that month, viz.: "Round-headed cyclamens, snow-drops, hydrangea hortensis, Christmas rose, winter aconite, white-leaved coltsfoot."

In the southern part of New England some garden flowers, and some wild flowers, come into bloom in March, but never in February. The garden flowers, named above, are generally in their prime here in April. Before I leave this point, it may be interesting to make further comparisons be-

tween the calendars of these two climates, taking, for example, the month of April, as the representative month of spring, and September, as the representative month of autumn. I shall confine my observations chiefly to the wild plants, as better exponents of the climate than those of the garden. Howitt gives the names of 57 wild plants that produce their flowers in Great Britain during the month of April; but these are only a selection of the most conspicuous, from a still greater number that might be mentioned. In the vicinity of Boston I can enumerate only 29 wild plants which are in flower in April; these are, *Aquilegia canadensis*, *Andromeda calyculata*, *Anemone nemorosa*, *A. thalioides*, *Hepatica triloba*, *Caltha palustris*, *Draba verna*, *Saxifraga vernalis*, *Sanguinaria canadensis*, *Ranunculus fascicularis*, *Leontodon taraxacum*, *Gnaphalium plantagineum*, *Carex marginata*, *Tussilago farfara*, *Polygala paucifolia*, *Epigea repens*, *Carex marginata*; and of trees and shrubs, *Ulmus americana* and *U. fulva*, *Comptonia asplenifolia*, *Alnus serrulata*, *Corylus americana*, *Salix eriocephala*, *S. discolor*, *Myrica gale*, *M. erifera*, *Populus tremuloides*, *Xanthoxylum fraxineum*, *Acer rubrum*.

For the month of September Mr. Howitt enumerates only fifteen wild plants in flower at that time in Great Britain; while in the vicinity of Boston, the number of wild flowers that come into bloom in September, including those of August that remain in bloom, is fifty-five. Thus we find the tables are turned in the autumn; for more than half this number remain in flower during the month of October, when the only remaining wild flower in the British fields is the common ivy. We may, therefore, conclude that there is a greater number of months in England when flowers may be found in the open air, and that they remain in their prime somewhat longer, on account of the dampness and sluggishness of the English climate. In New England, on the other hand, though we are two months behind England on the first of May, we have a full month more of good autumnal weather and of flowers.

With regard to summer fruits, June in England answers to July in New England. In June the English people gather cherries, raspberries, strawberries, melons, and early apples

and pears. In September they gather all the winter fruits which we gather in October. It is evident, therefore, that, as the English spring is two months ahead of our spring, and the English harvest only one month ahead of ours, both fruits and vegetables, on an average, require about four weeks longer for maturing in England than in this country.

A REVELATION FROM HORTICULTURAL HALL—THE DOCTRINE OF FLORAL PERFECTION.

BY AN OUTSIDER.

THE Massachusetts Horticultural Society, equally expert with the quill and the spade, equally at home in literature and lavender, after a fit of periodical somnolence, has awakened with a new sensation. However agreeable and refreshing this may be to the outside world, long deprived of fresh vegetable products and oppressed with the horrors of civil war, it seems to be a break in the general monotony not altogether relished by a majority of the practical membership of this amiable association, and its savants are in deep tribulation over a bantling of their own production. As an outsider, but not indifferent spectator of their griefs and well-meant efforts in the cause of strawberries-and-cream-devouring humanity, we thank them from the bottom of our heart for any kind of a sensation, not redolent of blood and carnage, and especially for one suggestive of the sweet-perfumed breath of untainted vernal fields and scenes of rural felicity, at this melancholy period, and proceed to an explanation.

The Flower Committee of this Society, acting under the auspices of its Committee on Publication, have just issued a treatise on the "Properties of Plants and Flowers," intended, as officially announced in their annual report, as the standard for judging of excellence and perfection in these departments, and as the basis upon which prizes are to be awarded at the future exhibitions of the Society. "All not complying with it," the committee further state, "will be excluded from competition." The cause and necessity of this publication, as set

forth in a brief introduction, (said to have been interpolated without the knowledge or sanction of the board,) is the alleged fact, that "The Flower Committee have been greatly troubled by the *general ignorance of florists and exhibitors* of what constitutes perfection in a plant or flower." This sweeping charge of "general ignorance" is also reiterated in the report above mentioned, embraced in the records and transactions of the Society. Now it happens that a very large, and by far the most active and influential, portion of the members of this association belong to that very respectable, painstaking, and generally intelligent class of professional "florists and exhibitors," thus censured and coolly shown up as a set of ignoramuses, apparently by their own committee; and the aforesaid treatise comes before the public in the shape either of a humiliating confession or a self-inflicted libel. No wonder the tasteful and thrifty brotherhood, who vegetate in the suburban districts, both in season and out of season, who get up our nosegays and Christmas trees, furnish us with early fruits and esculents, as well as rare specimens of floral loveliness all the year round, do not feel highly complimented by the appearance of this publication. This "unkindest cut of all" they scarcely deserved, since they are principally men brought up and educated in their calling, thoroughly versed in its most approved theory and practice, and for the most part scientific botanists. As an association for the promotion of horticulture, both useful and ornamental, it is safe to say they are not outranked in this country. To their indefatigable industry and research the agricultural community at large is indebted for inestimable improvements in all branches of its vocation, both as to the quality and quantity of its products; and the denizens of the city no less, for the many elegances and luxuries thus placed within their reach. Their social mission, as a moral and refining element of the great heterogeneous mass, is also an important one, and is being happily prosecuted and widely felt. As a class, they are not only enterprising but enthusiastic in their noble and intellectual pursuit, in which they take a commendable pride, competing with each other in a spirit of friendly rivalry, and naturally sensitive to unjust criticism. *Hinc illa lachryma.*

But why complain of the specific charge contained in the preface, when the scope and design of the work itself are an implied imputation of a lack of taste and judgment on the part of those for whose especial benefit and instruction it was prepared? Obviously the presumption of the Society's agents was, that this alleged ignorance existed among florists and exhibitors; otherwise we must deem them guilty of a work of supererogation in publishing information which their readers already possessed, and in volunteering instruction where they were conscious it was not needed. They complacently put forth a book to enlighten the ignorant upon a subject in which they are especially and chiefly interested; but when the chairman of their committee ventures to insinuate that *they* are the persons who need this enlightenment—or rather boldly declares, in prophetic phrase, "Thou art the man!"—their wrath is straightway kindled, and his impertinence is rebuked and denounced on all hands. His "offence is rank," to be sure, and he should have known better than to point his shafts of criticism, even if he thought them well aimed, against his own patrons; but he may console himself with the reflection that he is not the first great reformer who has fallen into the same grave and suicidal error. His case is strikingly analogous to that of the worthy hard-shell pastor, who gave eminent satisfaction to his parishioners as long as he continued to hurl the thunders of Mount Sinai, and the anathemas of the divine law, against sin and sinners *in general*; but who found he had mistaken his mission when he undertook to grapple with Satan *ex cathedra*, and make a personal application of the recognized code to his own charge. The author of this preface should remember that, though "the axe is laid in at the root of the tree," &c., no man, (however inspired with dread of fogysm, or zealous in the cause of progress,) is called upon to wield it for the purpose of hewing down his own "vine and fig tree," in the shade of which he comfortably reposes. The Goths and Vandals will do this soon enough, without his aid.

But we happen to know all the parties to this floral embroglio, personally and professionally; and are free to say, that we have a much better opinion of them than their committee

choose to express, or even than they have of themselves, according to their sanctioned publications. In a word, we do not believe this alleged ignorance exists among them, or any material portion of them—notwithstanding they have committed the superlative folly of laboring to give the public that impression, and are angry when the natural result of those labors begins to be realized. And in denying the premises, this imputation of ignorance and empiricism against the practical members of the Horticultural Society, we also deny the sequence, believing there is no necessity for a work predicated of a mythical condition of things. This volume purports to be a compilation of rules, constituting a descriptive standard by which to judge of the merits and excellence of foliaged plants and floral specimens. Its descriptions are very concise, and such as would readily occur to the mind of any amateur florist; they are characterized by much negative excellence, seeing that they do not undertake much, either to enter thoroughly in detail upon the subject treated of, or trench upon debatable ground; and if they do not supply any real want in horticultural literature, they are at least harmless, like homœopathic pills. Indeed, a glance at the work will satisfy any one that the evil to be cured by it must be of an exceedingly mild and tractable type, to yield to such a simple and infinitesimal remedy.

Being an enthusiastic worshipper at the shrine of the floral divinity, we have for the last year, on exhibition days, been a constant visitor at Horticultural Hall; and have always found there much food for admiration, abundant evidences of taste in selection, skill in combination, as well as of general discrimination and intelligence upon the subject of culture—much to praise and but little comparatively to condemn on the score of *quality*, considering the facilities and resources of exhibitors. Perhaps, however, we are not blessed with a hypercritical perception, and have not studied as we ought the rules of art which have been brought to bear upon and are intended to supersede those of nature—though we have always supposed that a correct and cultivated taste was the result of observation, rather than abstract study. True, there might be seen, on all occasions, specimens good, bad, and in-

different—such as the advantages of culture and the exigencies of the season afforded—which latter, owing to drought, the committee acknowledge (in spite of the rules laid down for its government), was “most unfavorable to floral beauty,” producing only “small and unhealthy flowers.” Each exhibitor, following the scriptural example of the poor widow, who cast her mite into the sacred treasury, brought such floral offerings as the bounty of nature had vouchsafed as the reward of his industry, and the aggregate result was, certainly, a pleasing, if not satisfactory, display of the triumphs of floriculture. But we never dreamed that the fact of some inferior and indifferent specimens being exhibited was an evidence of want of ability to discriminate on the part of exhibitors, or of that “general ignorance” which has so “troubled” the Flower Committee in the discharge of their duties, and called forth a volume of light to dispel it. We certainly never met with any florist or exhibitor, of great or small repute, upon the premises, who experienced any trouble in distinguishing the good from the bad, or in giving, *without the book*, satisfactory reasons for his judgment. If all specimens not conforming to the committee’s pattern had been ruled out last year, the exhibitions *de jure* would have been somewhat meagre, and much less interesting than the side-show; and, if all had come up to your standard of perfection—oh, most wise and sagacious judges!—by what rule of law or equity would you have been able to establish a preference and award the prizes?

Moreover, we doubt the propriety, not to say justice, of laying down rules as a criterion of beauty, whether in natural or artificial objects; which rules, though ostensibly deduced from nature or the most approved standard of taste, are necessarily, to a great extent, arbitrary and without authority other than prevailing fancy or mutable fashion. In those departments of natural science where external appearances are indicative of intrinsic qualities, as in the breeding of stock, rules which furnish a key for determining the excellence of specimens may be rational and useful. But in matters of taste simply, where the whole merit of the subject is at once obvious to the eye, they can scarcely be regarded as legitimate or admissible. If all who take pleasure in the contemplation

of beautiful objects could see with the same optics, and were endowed with the same perceptions and peculiar fancies, a *beau idéal* in every department of nature or art might be easily established. But it has been well and truly said, that beauty exists not only in the object admired, but also in the eye of the beholder. It is both a cause and effect—the *cause* of one of the most refined pleasures of taste, and the *effect* of certain mysterious and harmonious combinations, both in the object invested with it and the mind affected by it. The love of the beautiful is one of those capricious tastes which disdains to be hampered by arbitrary rules, which delights in diversities, irregularities, and contrasts, as well as in symmetry of proportion, regular figures, and geometrical outlines. As to the nice details of color, shade, and shape, which go to make up the *tout ensemble*, we apprehend as few connoisseurs would agree in regard to the properties of a perfect plant or flower, as touching the features of a perfectly beautiful woman, or the characteristic traits of a perfect Christian. We presume the educated and gallant chairman of the Flower Committee himself, if he wished to assemble the greatest possible amount of feminine loveliness at a *soirée dansante*, would not be so unreasonable, in issuing his cards of invitation, as to restrict his fair guests to any fixed standard of stature, style of figure, feature, hair, eyes, or complexion. We trust he may learn to be equally tolerant towards floral beauties; for, though there may be certain primary characteristics among them upon which all tastes are agreed, it is obvious that rules can properly extend no farther than to take cognizance of these; and, *a fortiori*, so far as all tastes are agreed, there is, certainly, no use or necessity for rules. Models may be successfully studied by the sculptor, and landscapes extemporized by the painter, who absolutely control their artificial creations; but nature is her own artist, and generally moulds and paints according to the dictates of her own bright fancy in the realm of flowers.

As to the utility of rules in the cultivation of that exceptional class of products known as florists' flowers, whose normal conditions and characteristics are subject to endless modification, we may say that it is at least questionable. In

this department, which, like the style of crinoline, is the sport of modists and their freaks of fashion, novelty rather than real beauty is the grand desideratum aimed at and admired; hence, the rules which apply to it are both arbitrary and changeable, and, in following them to the ridiculous extreme, floral monstrosities have been produced, which, though subserving pecuniary and speculative purposes, indicate no true progress in the art of floriculture, and have added nothing to its stock of attractions. Even the compiler of the work in question, in giving his beau ideal of the petunia, one of the most plastic and rule-ridden plants of this much-abused class, is fain to confess, that, "such is the fancy of people in these days, that a new, ugly color would be thought more of than an old, handsome one." If any further testimony were wanting to this point, we might cite the highest professional authorities, but must be content with quoting a brief and pertinent extract from Loudon, the eminent English horticulturist:—

"It may be observed, that the rules by which florists decide as to the merits of their respective flowers, do not depend on any particular beauty of color, and sometimes not even on form, but on certain arbitrary criteria which they have settled among themselves; as, for example, no auricula or polyanthus is admired that is what is called 'pin-eyed,' that is, if the style projects beyond the stamens; and a perfect dahlia should not show any green in the centre. Thus, as it requires to be a florist to know the full merit of florists' flowers, they are of comparatively little interest to amateurs."

We trust our friends of the Horticultural Society will keep perfectly cool under this afflictive dispensation of their Publication Committee, and let their plants grow in peace, whether according to Hoyle or Gunter.

It is to be regretted that the Society should allow any report to be published without being first read before the Society, or referred to the Executive Committee for approval. We are glad to know such a mistake will not be likely to occur again.—ED.

CORDON TRAINING OF FRUIT TREES,

ADAPTED TO THE ORCHARD-HOUSE AND OPEN-AIR CULTURE.

BY REV. T. COLLINGS BREHAUT.

SPIRAL CORDONS.

THE training these is essentially the same as that of Diagonal Cordons, because they also have an upper or vigorous side, and a lower or weak side. If planted in the borders of the orchard-house, and trained round wires, they have an admirable appearance. Twelve inches of interval is also required between the ascending stems, and not less than two trees should be planted to train on the same wires. These Spiral Cordons bear remarkably well, and for pot culture are unrivalled. The sun and air have free access to the open centre; the leaders are kept down, and the spurs on them, with due respect to the outrageous verticals, are easily managed. They should, in the case of pots, be pinched in more closely, as it is difficult then to allow a clear twelve inches of interval. The outgrowing shoots are, of course, not included in this difficulty. Wires are best to train round. When the leaders are fully covered, and your space well filled in, then lower the leaders, and twist them freely round the wires. If in pots, place them close to the glass, but not so as to shade others behind them. If for pear trees, in the open ground, very handsome specimens may be obtained, and really fruitful, only the centre *must* be kept well open. They are very easy to syringe in the orchard-house, as access is easy to the interior parts. I do not think that trees difficult to fruit would do, as some parts are rather in the shade. The free-growing varieties should be selected in preference.

VERTICAL CORDONS.

Select a straight tree, as before, well furnished with laterals; remove one third of the top, and cut in the laterals to two buds. Should any weakness appear in the lower laterals, cut down to one half of the whole length, because the *lowest stage* must be the longest, and it must be encouraged. Plant in a pot, or in the open ground, or border, as before. In the

ensuing summer the two buds on each lateral will develop; these must all be pinched as soon as six leaves long, to three leaves, then to two leaves, and then to one leaf; but in the lowest stages it is necessary to allow *one leaf more* at each pinching, until that part has a predominance over the rest; in other words, until it has a pyramidal form. Therefore, the lowest spurs all round should be well encouraged, and if disposed to become fruitful, then left as long as possible—*i. e.* hardly pinched at all, and the whole tree kept to the pyramidal form altogether. If the lowest shoots grow freely so much the better; merely pinch them back, according to their vigor, and if laterals grow on these, pinch these to two buds each. The object in view is to obtain a fruitful pyramid in a vertical position, and the pinching is only to obtain this; but as the top grows very freely, it must also be kept under, and occasionally pinched back, according to the vigor of the tree. In this case the amateur will soon know how to proceed. If the Vertical Cordon, however, be destined *as a reserve* for banks in the Diagonal Cordons (and this must be kept in view), then pinch all the shoots pretty equally; but if the lower ones are inclined to become single shoots, then this must not be allowed to be. Endeavor to have these reserve trees regularly supplied with spurs, and two shoots on each; and if a tree obstinately refuse to come to this shape, it had better be rejected as time and patience wasted.

The vertical pyramids must not exceed the diameter of the pot they are to fill (generally a thirteen-inch pot), at their base.

If you plant the Vertical Cordon against pillars in the orchard-house, it need not be pyramidal of course, and this is another use for the potted vertical cordons to supply. Against pillars, with their ends trained up to the rafters or sideways, my own trees are splendid, and they are an amusing variety, because you may develop a second stem before and another behind each pillar, and the fruit on the part near the glass will be very fine. These trees will require removal, probably annually, as they grow, to check undue luxuriance. A few ties are all that is required, and they are easy to syringe and take care of in every way. No strong-growing variety

should be planted either in pots or against pillars in the borders. Out of doors Vertical Cordons require very high walls; they are then useful, but unless they have a large number of upright leaders they are apt to grow too freely; and for peaches, there is really no necessity for adopting this form in out-door culture.*

HORIZONTAL CORDONS.

Under this head, for practical purposes in Cordon training, may be ranged all fan-shaped or "palmette" trees on walls; all standard out of doors; and bush trees in pots. Every one knows how to commence the training of these,—how twelve inches are to be left above the soil, and how fan-shaped trees are to be thence carried out. In the case of wall trees, light rods should always guide the young branches, and these should never be brought toward the horizontal line, till well established, otherwise, adieu to the symmetry of the tree,—the lowest stage being too short. But if these trees are trained horizontally, then let the branches be depressed year by year from an angle of 75 to 65 degrees, then 45, and lastly to about 30 degrees. Any approach to the perfect horizontal line is useless, except in the case of two small branches developed from the lowest stage to fill up the lower corners. The Cordon system is equally applicable here,—*i. e.* that part of it which relates to the management of the spurs and shoots.

As we are now treating of peach trees, of course the upper shoots must be trained like those on the upper sides of the Diagonal leaders, and the lower shoots like those on the lower side of these leaders. The branches to be shortened by one-third yearly, and when older, by one-fourth, and finally by one-sixth of their length; the main stem encouraged fairly to grow. An interval of twelve inches is sufficient between each stage of branches, while, in old methods, eighteen or twenty were needed for the enormous shoots to bear their

* The Vertical and Spiral modes of training trees are admirably adapted to pot culture, and amateurs who are growing fruit trees in this way will be well repaid for their labor, in the superior beauty of vertical or spiral trees, compared with the ordinary bush or no system plan. A little extra care is necessary in the commencement, but their after treatment requires little more attention than when grown without system.—Ed.

solitary peach. Of course the crop in fruit ought to be doubled, and would be but for fear of sacrificing the tree.

But how long time it takes to reach the top of a ten or twelve-foot wall we all know well enough, and when there, the tree is beginning to decay. A system valueless for such splendid fruit. For pear trees, which last longer, it will do well enough, but the Diagonal Cordon is far superior, even for peaches under the glass of a forcing peach-house. If then it be desired to reduce peach trees, trained on some queer old method, to the newer plans, the shoots must be pinched in, and cut off by degrees till the spur with two shoots thereon is reached. Then some strong shoots should be selected to fill up the blanks between the branches, and laid in to the wall, being very slightly shortened in the winter. Their laterals should be pinched in to two buds, and with care, the tree will become reorganized in two seasons, *without injuring the crop*; because that shoot which is *to bear the fruit* can be left to bear it, being only pinched off at two leaves beyond the fruit, and cut back *behind* the fruit *immediately* after it is gathered. The other non-bearing shoots may be closely pinched in and cut back, as required. There is not very much difficulty in doing this. After a severe blight this July, I cut off the miserable ends, and refreshed the trees, and brought them well into shape,

As to the treatment of peaches and nectarines in pots, it is easy enough. Treat the spurs and shoots like the Diagonal, only rather more pinched closely in, as there is less room. On the bush tree (like a currant bush), all the branches, say eight or nine, are full of these spurs, and the treatment of them is easy. At the lowest parts, the short, natural fruit-shoots generally obviate any trouble in this way, which is convenient, because there the branches are, necessarily, near to each other. Of course the upper spurs of bush trees require closer pinching-in than the spurs on the lower sides, and two shoots on each spur are required.

CORDON TRAINING IN APRICOT TREES.

The apricot is a magnificent fruit. It probably came from America. Thence it passed into Greece and Italy, and so on

to our ungenial climate, and is pretty generally cultivated, capricious as it is in bearing. The apricot does not force very well; it dislikes a confined atmosphere, and succeeds best in breezy situations, with abundance of sun. Indoors it requires great attention in the blooming season, and careful watering at all times, or it is liable, either from this cause or from deficient ventilation, to drop its fruit after setting. De Jonghe considers this to arise from not being grown on its own stock, and this may be the case. The more sun and air apricots have the darker will the fruit be, and the better the flavor. Of all in cultivation, I find the Kaisha the best. Some new varieties, as yet unknown, from Lombardy, promise extremely well.



7. FORMATION OF FRUIT-SPURS ON THE APRICOT. FIRST WINTER'S PRUNING.

Diagonal Cordon training is well adapted to produce fine fruit on the apricot. The triple system, with the same intervals between the leaders, is the best suited for this tree. If grown out of doors on espaliers, thick straw palliasses behind the espaliers are necessary until the fruit be half grown, and then removed to give free circulation. But at best, in England, the tree bears only at long intervals. The spring frosts ruin the tender blossoms. It is far best cultivated under glass, except a few hardy varieties—the names of which are given in the list of trees at the end,—which are useful for preserves, but not very enticing in flavor.

The shoots on the leaders should be pinched to four inches as soon as they are six inches in length, and the successive growths on them pinched to one inch more, as soon as they become two inches long. In winter pruning cut back in order to develop the buds at the base of each shoot, and as these are numerous, and more easily developed than in the case of the peach, there is no difficulty whatever in replacing a shoot as soon as worn out, or unsightly from pruning. The appearance of an apricot shoot at the first winter pruning is like that at FIG. 7. In this figure the shoot is shortened in by one-third; the fruit-buds are seen about half-way up the sides, and the latent buds appear at the bases.



8. FORMATION OF FRUIT-SPURS ON THE APRICOT. SECOND WINTER'S PRUNING.

The second growths in FIG. 8, which will eventually grow out from these buds, having the appearance as seen in this last figure, must be left to bear if on the middle of the spur, but the one or two near the base will be full of leaf buds, and must be shortened to two buds to form a succession of shoots. About one-third of the whole shoot is removed at this winter pruning; and the whole length is easily kept within the six inches allowed, because these short laterals will form much of the bearing wood. Remember, however, to shorten some of these, in order to have fruit as near the base as possible.

In FIG. 8, the next winter pruning would be just over the two lowest laterals at A, as the upper shoot would then have become much elongated, and be fruitful. This has in its turn to be shortened, while the lower would have pushed out in one or two places, and so on. One long shoot and one short one, as in the peach, is also an excellent plan, but is not shown here to avoid confusion. Do not prune the apricot all at once, as it is a tree liable to gum, and take care the ties are not growing into the bark for the same reason, nor induce plethoric growth by over-feeding the tree.

Horizontal trees are easily grown in this way. Develop two very long branches, stretching at an angle of forty-five degrees on either side. When fully grown, lower them to the horizontal position, and the shoots already allowed to extend from the *upper sides* only, being now vertical, will, in one season more, ascend to a great height; they will make, at the same time, laterals, which must be pinched in rather closely at first. Pyramidal apricots in pots look very pretty. They are easily grown by continual close summer pinching-in to five or six leaves. The leader, if kept under by several shortenings in, will produce fresh shoots along it. These pyramidal apricots are much recommended by the great authority of Mr. Rivers, and they certainly can be placed very near to each other, say about two feet. If planted in borders they require annual lifting and re-planting, and, of course, not so much water. Apricot trees, trained spirally as half standards, are very pretty and prolific. In some cases this is necessary, in order to get the fruit near the glass.

POMOLOGICAL GOSSIP.

POMOLOGICAL WISDOM.—In a recent number we noticed a grape recently brought to notice, called Mead's Seedling, and stated that we had little doubt it would prove to be the Diana under a new name. Our cotemporary of the Gardeners' Monthly thinks we are "waggishly" inclined in pomological

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matters, "though pomology is too much a matter of fact subject to bear joking about," and that "it would be better for our readers to treat it more seriously." Now we always thought we were too serious in regard to all pomological facts, often showing up errors when it would be better to let them pass, giving the SOURCE OF THEIR ORIGIN. We certainly have been inclined to treat some of the more ridiculous of these in a light way.

As regards the Mead's Seedling grape, our cotemporary says the Lancaster (Pa.) grape growers, with specimens before them, pronounced it "similar but superior to the Catawba." Just exactly the words we once used in regard to the Diana. But what has this to do with it. We have quite as high a regard for the opinions of the Lancaster grape growers as our cotemporary has, but this will not make them infallible. Some years ago, Mr. R. Thompson pronounced the Josling's St. Albans a new and superior grape, and on the strength of this opinion the introducer of it sold 1000 vines for 1000 guineas. It unfortunately happened that the 1000 guineas were a total loss—to the buyers—for they had an abundance of Muscat Blanc Hatif, or Chasselas Musqué, without buying them over again at one guinea a plant. It is not absolutely necessary to see a fruit to detect its true name; a leaf or a shoot is often better than the fruit for this object. We might adduce many similar errors, unintentional undoubtedly, but nevertheless errors still.

LYCURGUS PEAR.—This is the name of a seedling raised by the late Judge Hoadley of Cleveland, Ohio. Judge Hoadley, his son, of Cincinnati, sends us the following notice of this pear, which appears to be one of some merit:—

"It is a seedling, probably, of the Seckel; russet color, of the Seckel size and quality, and ripens in November. The parent, or original tree, stands in my mother's garden at Cleveland, where it bears annually as full as it will hold. Every one who has tasted it, from Dr. Kirtland down to myself, considers it a valuable addition to American pears. If you should like grafts I shall be pleased to supply you.—Yours truly, GEO. HOADLEY, Cincinnati, O."

We return our thanks to Judge Hoadley for a few scions.

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DUCHESS D'HIVER PEAR.—A new pear under this name is described and figured in the *Revue Horticole*. M. Carriere, the writer, thus notices it:—It is a tree of handsome growth; grows vigorously either on pear or quince; is easily trained to any form; comes early into bearing after being worked; has very fine good sound fruit, well attached to resist winds, and does not prematurely ripen by hot suns; it will keep in the fruit-room better than any other winter pear; it ripens successively from December to April, without any becoming damaged; in a word it is such a fruit for winter as the Duchess is for autumn. It was raised by M. Barthère, curé, of Toulouse.

THE TOMATO DE LAYE.

BY THE EDITOR.

THIS new and very remarkable variety of the tomato demands more than the passing notice we gave of it in our last volume. It had not then been fully tested; but it subsequently proved to be such a valuable acquisition that we believe we shall be doing our readers a real service in commending it to their especial notice, and urging its culture wherever the tomato is a favorite; indeed for mere ornament it is no mean addition to the flower border, where its dense bushy growth, thick dark-green leaves, and clusters of large fruit, render it conspicuous and attractive.

It would be interesting to know the true origin of this variety; whether it was a mere accidental sport from the seed, or the result of some unknown fertilization, though probably the former; all we know is that it was found in a bed of seedlings, by M. Grenier, gardener to M. de Fleurieux, at the Chateau de Laye, France, from whence its name. It differs essentially in habit, foliage, and growth, though the fruit is similar to some of the accidental seedlings now in cultivation, its nearest approach in size and appearance being to the Perfected tomato, so called, though it is milder and better flavored than that variety; it is in fact one of the best, if not *the* best of all the tomatoes in its edible qualities.

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The Tomato de Laye, or Erect tomato, as it is called, in accordance with its growth, and to obviate the pronunciation of its French name, is very vigorous in its habit, with a straight stem, attaining the height of two to two and a half feet; remarkably stout, short jointed, with thick leaves, much crumpled, on very short petioles, and very dark green. Its branches but little, the lateral shoots rarely extending more than six inches. The fruit, which is very large, regularly formed, and deep red, is borne upon the short branches in such compact clusters as to nearly hide the main stem; as many as 15 ripe fruits having been counted upon one of our plants last season, giving them a really ornamental appearance.

In cultivation it only needs a straight stout stake, two feet high, to which the main stem should be tied, like a dahlia, and the plants may be placed at two feet distance, without crowding, so dense is their growth. The fruit ripens as early as the common smooth red, and some days before the Perfected tomato, which, as we have stated, it more nearly resembles in form and size than any other kind.

For pot culture it promises great advantages, growing erect and occupying but little room, forming, with a little training, a regular pyramid of leaves and fruit. Upon the approach of frost, if the plants are removed to the greenhouse, the fruit will continue to ripen, and a few plants will afford a liberal supply the winter through. It may in truth be called the perpetual as well as the erect tomato. A cultivator, who has an abundance of room in his greenhouse, informs us that his plants have continued to grow and ripen their fruit from October to the present time. Early in September the plants should be taken up carefully and potted in 8 or 10-inch pots, shading them slightly for a few days till freshly rooted, when they should have the full sun and air. Before frost, remove them to the greenhouse, where with due attention they will continue to grow and ripen their fruit.

The Erect tomato is a great acquisition, and lovers of this healthy and excellent fruit will cheerfully award M. Grenier all the praise he so well deserves for his careful attention in preserving such a remarkable variety.

IN-DOOR GARDENING.

FROM THE GARDENERS' CHRONICLE.

WE continue our extracts from the articles on window gardening, and particularly commend the following on the treatment of heaths and camellias, to amateurs who have heretofore found it difficult to manage these plants in-doors, particularly the camellia, which is now rarely seen in rooms, on account of the uncertainty of its blooming.

But the advice of the writer, if strictly followed, will obviate all the difficulties in the way of their successful management. Heat—dry heat, is fatal to the camellia; and it is so difficult to convince amateurs that they must be kept cool, almost at the freezing temperature, that they will roast the plants in a warm sunny window, till the buds begin to drop, when they all denounce it as unsuited to in-door culture.

If a natural mode of treatment is adopted, even without all the care of double pots—which can certainly do no harm—the camellia will flower nearly as well in rooms as in the greenhouse. To do this, however, the plants, on removing them to the house in September or October, should be placed in a COOL room, where the temperature does not exceed 50° , and if as low as 35° it will do no injury. Here they should remain till the buds begin to swell, and show some signs of flowering, sprinkling the foliage occasionally with water, not too cold. Then remove them to a warmer place, not a hot sunny window, where the temperature does not exceed 60° or 65° , and if as low as 45° at night it will not hurt them. Syringe the foliage often. Keep the roots evenly moist; and the lover of this beautiful flower will reap the reward of his care in an abundance of large, well developed, and superb blossoms.

The camellia is almost a hardy plant; keeping this in mind, remembering that a hot, dry air is always detrimental, and that their large foliage requires a constant supply of water, success in camellia culture is far more certain than with many other plants:—

HEATHS AND CAMELLIAS.—All window gardeners are ambitious of "growing white camellias." I do not think I ever heard of a flower-stand started, at least at this time of the year, without a little hint at this especial longing, or without a sigh at the failure of some previous attempt.

In proportion to our admiration of any special plant we generally will make much of it; and warm sunny corners in a sitting-room, and continual anxious waterings, are not attentions under common circumstances acceptable to these plants. People are misled by forgetting to consider that a forced plant is not in the same state as one that flowers naturally; and thus they often adopt the instructions given for the much forced plants for those which they, themselves, have slowly coming on, which merely require a cool and airy place, and to be preserved from getting really dry at any time.

Camellias are in some ways the very pleasantest and in others the most tiresome of all plants to grow. It is so mortifying to see the buds drop off. This is a thing, however, which has not the least right to happen, and it would not do so more frequently with camellias than with other plants, if we only recollected as I say, that the coolest, not the warmest room, is the safest for them; that draughts and sudden changes of temperature are the worst things for them, and that the most frequent cause of the falling buds is want of equilibrium between the soil and air, the soil saturated, and the air dry—all perhaps hot and parched on a frosty day, or the air and foliage carefully made damp, while the soil at the roots is dried into a cake. When quite unforced the safest and easiest way to have the camellias is then, I think, to place the pots in a box, or in second and larger pots, filling the space between with sand or moss, constantly kept quite moist, the room being either without a fire, or the stand on which the plants are being damped. Most likely, with this treatment, they will blossom beautifully, perhaps even better than in a regular conservatory. These plants, however, when forced, certainly like some warmth as well as a moister atmosphere. No plants do better in plant cases, where I have known their flowers last more than three weeks unfaded. But then there was the advantage of constantly moist sand

for the pot to rest on, and just such a degress of moistness also in the air as without being wet to keep the leaves all fresh.

It must be remembered, indeed, in attempting window gardening, that dry air absorbs the juices out of every scrap of stem, and flower, and leaf, and that we must prevent the call, or supply wherewithal to meet it; and that sun or wind beating upon a porous flower pot, not only cools the soil, precisely as we cool water in porous bottles for summer use, but draws out and sucks up also every drop of moisture, leaving the roots half baked. Camellias are useful flowers in teaching us this lesson very unmistakably! and I hope I have succeeded in making my meaning clear—that though forced camellias, such as are now in flower, require warmth and slight continual moisture, the plants we have in windows preparing slowly to blossom about Easter must be merely prevented drying, preserved from soakings of water, and kept in a cool place, if possible in a room where there is no fire.

The old Double White is still one of the best plants to grow—and the exquisitely beautiful *Fimbriata Alba* is also tolerably freely flowering, and is always lovely with its delicate notched petals.

If the leaves need sponging it must be done with warm water, and every drop of water given to the roots must be also warmed. I have never known anything make so great a difference to the health of plants, and when this is attended to, green flies—those torments of some gardeners—seem to become unknown.

Heaths may be treated very much like camellias at the present season, standing always in a double pot, and kept in the very lightest place that can be provided for them. If they should stand out on a plant-stand a light net should be thrown over them while the room is dusted, as with their tiny foliage it is difficult to dislodge dust.

On a very dry frosty day it is often well to sprinkle the plants a little, if not actually in blossom; and here I beg to mention a regular window-garden contrivance; as the very best thing for this is a goose's wing, like the housemaids use, which can be dipped (just the tips of the feathers) in water, and then fanned a little, so as to sprinkle the heaths.

Heaths require generally a little water daily, but none should ever stand for a moment in the saucer. Faded flowers should be cut off with sharp-pointed scissors. *Erica hiemalis* and *Epacris impressa* are two pretty kinds, and both are now in flower.

I do not know if all in-door gardeners are apt or not to find themselves now and then in the predicament in which I was once, that of having been so busy taking care of the spring flowers in blossom as to have quite forgotten to provide for summer and autumn gaiety.

There are several things which we ought to be doing now, and amongst the most essential, I think, is the potting the summer bulbs.

Liliums, for example, *longifolium* and *longiflorum* ought now to be procured. Gladioli again make splendid masses of color when grown in large groups in pots, and *Calla ethiopica* and *Vallota purpurea* ought also to be obtained. *Begonia Evansiana*, again, should be started now, and *achimenes* and *gloxinias* should be placed in a warm plant case, or in some kind of heat-providing substitute; while the climbing *tropæolums* for window baskets want much of the same treatment. As to the Japan lilies particularly I do most strongly advise all whom it may concern no longer to delay getting in these plants. My favorite mode is to have about five roots in one large pot, giving thorough drainage; first an oyster shell, or better, a zinc cap (to exclude worms), then a layer two inches deep of pounded charcoal, a handful of moss, the pot filled up with good soil—leaf-mould and sand—the bulbs planted almost on the top, and a good thick layer of cocoa-nut refuse covering them well over and packed in amongst them. The little surface roots perfectly fill the fibry stuff which covers up the bulbs; and my plants thus treated have been very beautiful. They may stand anywhere clear of frost till they begin to come up, then a window is suitable till the end of May, keeping them nice and moist, and after the flower-stems rise, a pan of water to stand in or a box of damp sand is the proper treatment.

Vallota purpurea I have not yet myself grown in a window. It requires, however, treatment very similar to that of the

arum lilies, whose great points are perfect rest, *i. e.* keeping dry for some time after blossoming; unbroken leaves when they begin to grow, and a constant supply of water not only given but suffered to remain standing in the saucer.

The prettiest arums that I ever saw were standing immersed in a small tank of water; and window gardeners, I think, might adopt this practice for aquanas, only taking care to cover the soil in the pot either with sand or pebbles. The plant should not be in very deep water, as the flower stalk and the leaves should rise above the surface.

The begonias and the achimenes require heat to start them. The difficulty for these with window gardeners, who have not means at command for giving proper heat, is generally, I think, in obtaining moisture. A box of damp sand with pots sunk in it, and bell-glasses placed over them, answers, however, well if placed upon a chimney-piece, or over some hot air or water-pipe. There are plenty of such contrivances for any one who will think of them; indeed I once heard of some arrangement for forcing bulbs and seeds over a baker's oven, and when I hear of very beautiful hothouse plants appearing in cottage windows, I always guess that some such clever plan is at work inside.

The gladioli, however, like the lovely lilies, require no heat at all, and they are so gay with their great spikes of blossom, that any one with their aid may have a bright window-garden. These are also first-rate flowers for towns.

The new varieties of the last two years in a list I have just seen, published by Messrs. Hooper, include a great number of beautiful and delicate shades of rose and white, and of white and purple—Empress, Galathée, Vesta, and Madame de Vetry are very pretty. Bertha Rabourdin is a well-known flower, with a crimson blotch on its clean white petals, and there is a new one called Marie, which is said in the aforesaid list to excel the last-named in beauty, but this I have not seen. Window gardeners ought, however, to be very careful in ordering these flowers to avoid having four or five “very distinct varieties,” very much alike! The multiplication of names is endless, and it has before now happened to me to have new flowers sent in, of a style so much resembling many I pos-

sessed as to be quite vexatious. The best way is in such things to put down always the names of the plants one has, and to request the seedsman to avoid immediate repetitions. Many, besides, of the best nurserymen abstain very carefully from filling up page after page with things too much alike, and the colors are given with so much exactness that even those who have never seen the flowers at all cannot go very wrong in making their own selection from the colors described. One caution I must give, however, it took me so long to learn it—in ordering plants it is very dangerous to think that in all cases “white tinged or blotched with rose, and rose streaked or blotched with white,” will produce a brilliant variety. The rose in one may be brighter, or the white in another rosier, and thus we may find that our variations require to be looked at closely; as seen even across a room they produce a general rose effect! Purple and white, I think, are always very beautiful; these contrast well with the white and rose. The pale straw color, too, is pretty and peculiar, and the brilliant scarlet most useful for lighting up. *Gandavensis*, scarlet and yellow; *floribundus*, white and pink or purple; and *ramosus*, rose color, are very cheap, showy, and distinctive kinds, even for cottage windows.

When the *gladioli* are chosen, they may be potted much in the same way as the Japan lilies—three to five in a 5 or 6-inch pot. I am always inclined to small pots myself, knowing their great convenience where small spaces must be filled up brilliantly, and after all, the bulb roots generally go downwards; thus we can often give a little help in need, by allowing the pots to stand upon a bed of cocoa-nut stuff or soil.

After potting, the plants should be placed in a cold frame or room—covered in the former case with something like coal ashes, about four inches deep. They require at first scarcely any water, but after a time, as the leaves come up, more may be desirable. It is quite essential not to let the pots dry later in the season, but it is now so easy to have either balconies or windows fitted with tile boxes, that this very simple precaution ought always to be taken. The range of materials is at least wide enough, and even where expense is no small consideration, the saving of plants effected by this means renders it most advisable.

All bulbs feel extremely any dryness after their growth has once set in in earnest. Even now, perhaps, some people may be distressed at tulips and crocuses going out of bloom too fast. If they examine the soil it is not unlikely that they may find it dry, for the quantity of water absorbed and transpired by bulbs is something quite astonishing, and then a good watering will often give the flowers as it were a new lease of life.

I cannot help here remarking one curious instance of the rapid transpiration mentioned—arums in summer having constantly a drop of clear water at the point of every leaf. These observations are not merely interesting to window gardeners, but also of much importance, for it is by such things, as for instance by the dew cast on glass by leaves, that we learn to guard against what may be injurious, and still more to trust to the natural provision made for balancing what we might deem excess, while it is in fact useful to the plant. Thus, when we fear for arums the too much water given, forgetting their natural alternations between dry ground and swamp, we may be reassured by seeing this provision.

General Notices.

MATERIALS BEST SUITED TO THE GROWTH OF ORCHIDS.—After so many years' experience I find that it would be difficult to say in what orchids will not grow, for I have seen many of them living and even thriving under circumstances and in soils which would be fatal to almost any other tribe of plants; they can seldom, however, be had in perfection without proper means and appliances. Obviously the first thing is to provide such materials as the roots will luxuriate in, and I think that to a true lover of orchids even the successful flowering of the plants themselves hardly yields more gratification than watching the progress of a healthy root action, especially when it is considered that it tends to induce successful results.

It is, of course, generally understood that orchids are grown chiefly in peat and sphagnum, with the exception of a few terrestrial species which require stronger soil; but under the name of peat I have seen such vile material used that the destruction of valuable specimens could only be a matter of time. Sometimes they are treated to a soil more suitable for American plants than orchids, becoming, as it does, from constant watering, a

close, soddened mass, causing certain destruction of the roots—or to stuff from a bog, when dry only fit for a hearth, but when exposed to the action of air and water rapidly approaching a state of decomposition. Sometimes rotten wood is freely used, but I consider it worse than useless; for charcoal, which is much more wholesome, answers every purpose.

Hypnum moss, mixed to any extent with peat, is not conducive to the welfare of plants in pots, as I have found it to decay very rapidly when it changes to a dark mould. Sphagnum has not this disadvantage. I however managed a collection for several years tolerably successfully, with nothing but Hypnum for a moss, but the peat was most excellent, and the Hypnum was only used for lining baskets, and for covering the roots of plants on blocks. I used it in flakes with the greenest side outwards, finishing by clipping off the loose ends. I should have continued its use, but the peat commons became enclosed, and I found Sphagnum to be a great assistance.

The kind of peat most suitable is that of a light, fibrous, and porous character, which can be generally found on heathy ground, where the common ling (*Calhuna vulgaris*) and *vacciniums* abound, more especially where the heath and turf are not often cut and pared. The material from such situations consists of decayed leaves and roots of the plants just mentioned, intimately mixed with a dead undergrowth of moss and roots of grasses. Should soil of that kind not be obtainable, the next best substitute is the top spit of a heathy common, with the earthy portion well shaken out, retaining only the more fibrous part; in any case the brown is preferable to the black. Some editorial remarks appeared in your paper for May, 1852, which made a strong impression on my mind; and I must make that my excuse for referring to them here. The occasion was that of a sale of imported plants by Stevens, and persons even who were not buyers were recommended to go and see what they grew in, and on, in their wild state,—“What masses of entangled roots, dead sticks and leaves, afford them sustenance; what swarms of ferns and other plants crawl among them; what layers upon layers of the most humid but not wet, most rich but not stimulating, most cool but not cold, most rotable but not rotten, matters they delight in; and how, as they themselves decay, they furnish pabulum, on which they also feed and flourish by devoting their own substance. All these things the orchid-grower may see and largely profit by, has he but skill to interpret the universal language in which nature speaks to those who can decipher the living characters in which her operations are emblazoned in woods and fields and on rocks and mountain tops.”

Keeping these principles in view, the supply of peat in this neighborhood having failed, I have been using something very nearly approaching the material just described. At first sight it looks like so much tobacco, but upon close inspection and handling it is found to consist of minute portions of oak and other leaves, intimately bound together by masses of fibres from *Polypodium vulgare* and other plants. I find this material beneath fir and oak trees, accompanied by an undergrowth of laurels, *vacciniums*, heaths, &c., immediately on the surface of the red sandstone; in some cases I peel it off in flakes from the sandy rock itself. With proper modifications, such

as practice points out to be necessary, most orchids are quite at home in this material.

Sphagnum is almost indispensable, and may be used as it is found or chopped fine. I much prefer the latter, either for mixing with peat or for neatly topping up the surface after potting; the greenest if kept damp, will commence growing and be much more pleasing to the eye than bare peat. For potting nothing else is required except charcoal and small crocks or potsherds, a mixture of both being preferable. I use a large quantity of the former for drainage; it is light, and the roots frequently cling to it with avidity.

As regards baskets, I first line them with flakes of moss, and then proceed, as in potting, with a mixture of peat, charcoal, and potsherds broken small, finishing off with chopped sphagnum.

For blocks any hard wood will do, such as whitethorn or acacia, but where they can be obtained there is nothing like pieces of the branches of the cork tree cut into different sizes. Having them here I always use them. (*Gard. Chron.*)

MIGNONETTE FROM CUTTINGS.—Having to grow mignonette for winter bouquets, a thought struck me to try cuttings, accordingly I went to work, got a quantity of cuttings, planted them in a 48-sized pot, and placed them in bottom heat. This was in September, and in a very short time all of them struck root. I then potted them singly in the same sized pots, and I flowered them in them. So satisfactory was this trial, that I determined to strike another lot, and this time, however, I planted three cuttings in each pot of the size just named, so as not to disturb them by repotting, and now I have plenty of mignonette to cut from.—(*Gard. Chron.*)

MUSHROOM CULTURE—MY BED AND HOW I MADE IT.—About the 20th of June last, I gave orders to my groom to save a one-horse load (say twenty bushels) of droppings from the stable, and to take out all the long pieces of straw, leaving the short pieces mixed with the droppings. This load was placed in an open shed in case of very heavy storms coming on to saturate it. I then bought from the gatherers twenty bushels of droppings from the road. This, being mixed with sand, checks the too rapid fermentation of the stable-droppings. This I mixed with the above, and formed it into a heap like a haystack. Fermentation, as the doctors say, “supervened,” and on the 28th of June I reckoned my materials ready to make my bed.

I fixed upon my cellar as the place to make it in. This being dry, light, and, for a cellar, moderately airy, temperature all the year round from 50° to 57°, I had a bottomless box prepared, made with inch boards, 7 feet long, 4 feet wide, and 20 inches deep. Into this I had my forty bushels of horse-droppings placed, hammering them down with a rather heavy mallet as they were emptied into and spread about it. The surface was then levelled, a thermometer placed just under the surface, and the bed left. On the 6th of July I found the thermometer down to 70°, (it should not be lower than 70°, nor higher than 75°,) I then took half a bushel of good spawn—mine

was the Miltrack—and planted it in pieces from about 2 inches to 3 inches in diameter, and 1 inch thick, poking it in just under the surface with my fingers. I then took some light mould, not dusty, but rather dry—it was refuse pot mould sifted, and spread it over the bed 3 inches deep, hammering down with a heavy spade, so as to make the surface quite smooth, hard, and level, and the depth of mould thus pressed down was about 2 inches over the spawn. About the end of July the mushrooms began to appear, and ever since the middle of August this small bed, 28 square feet, has given enough not only for the wants of my house, but enough for my neighbors. The bed is at this moment crowded with mushrooms of all sizes, the small ones are so thick that they look as if white mustard seed had been strewed over the bed. Any one with a cellar not too damp, or a shed not too airy, may grow mushrooms in boxes of the depth given as above. A box six feet long and three feet wide would give a great abundance, and, I believe, that no uncertainty in their culture exists, if people will do as I have done.

It will be seen that no covering is used, and what a nuisance it used to be to have to remove the covering of hay before you could gather a few mushrooms. I have watered my bed three times since it was made, for I found the surface getting quite dusty in August. I gave it each time about three gallons of water, warm, (temperature 90°), sprinkling the surface with a fine rose.

I can tell your readers that a mushroom-bed placed as mine is, in a light, dry place, is most interesting, and the flavor of mushrooms thus grown without covering is most delicious. I have never eaten any equal to them.

REQUISITES FOR GROWING MUSHROOMS.

1. A bottomless box 20 inches deep and from 3 feet to 4 feet wide, and from 5 to 7 feet long. If your wants are great have more boxes.

2. A dry cellar with a minimum temperature of 50°. This will do for a crop all the year round. The temperature of my cellar is now 51°, and the mushrooms are growing freely.

3. In default of a cellar, a close shed, with thick walls either of brick or stone, in which the maximum temperature in summer is not more than 60°. A place of this kind will do for mushroom culture in spring, summer, and autumn, but not for the depth of winter.—(*Cottage Gard.*)

Gossip of the Month.

THE ORCHARD-HOUSE REDIVIVUS.—In the article, "Orchard-Houses," in the October number of the Magazine, these structures come in for a liberal share of depreciative criticism, on the assumption that Mr. G. G. Hubbard lost his entire crop of peaches and apricots by the severity of the past winter. Now before the cause is assumed it would be well to ascertain the fact; for this undue assumption of premises, as the logicians would call it,

or, in common parlance, this grasping at straws, gives strong presumptive evidence of a weak and untenable position, is generally productive of erroneous impressions, seldom fails to lead to false conclusions, and the disputant obliged to resort to such flimsy pretexts to sustain an argument will be, we opine, scarcely able to make out his case. To prognosticate the failure of orchard-houses on such grounds—to denounce them as “bubbles” and “toys”—and to demolish them Bobadil-fashion with a stroke of the pen, may be very good amusement for those afflicted with a *cacothés scribendi*, or those in love with some pet theory of their own, but without correct reasoning and tangible evidence of their inadaptability to the purposes for which they are employed, these long-winded predictions and groundless assertions will never stay the advancement of this species of cultivation, nor add one laurel to the horticultural reputation of its opponents. But as it is not our intention to enter the lists and break lances with those writers who seem determined to write down orchard-houses *per fas et nefas*, we will simply state the cause of the falling off in our peach crop, and leave our readers to draw their own conclusions.

When our first crop of fruit was gathered the trees were but fifteen months from France, and the crop larger by two-thirds than the trees ought at any time to have been permitted to bear. The veriest tyro in horticulture knows that this process generally exhausts trees to such an extent as to render them unfit for bearing the following year, and our trees—aside from this natural law—this repose of wearied nature—not being sufficiently established, of course were not an exception to the rule, and the consequence was a sparse development of blossom buds this year, from which, however, a fair crop of peaches of higher and finer flavor and larger size was obtained than those of last year, specimens of which were exhibited four different times at the shows of the Massachusetts Horticultural Society. If this fact does not prove the fallacy of the assertion that, “The same cold which destroyed the peach buds in the open air, killed them in the orchard-house,” it proves nothing. Moreover, to supply what is suppressed in the above quotation, the same cold which destroyed the peach buds in the open air killed the branches and in many instances the trees also, while it did not affect a single twig in the orchard-house. What is true, therefore, of a small crop must be equally true of a large one, *cæteris paribus*, and where the former passed unscathed through the ordeal of a rigorous winter we can see no probable reason why the latter should not share the same immunity.

The injury to the apricots is grossly exaggerated for the purpose of bolstering up this unwarrantable onslaught. The fact is, that out of twenty-six plants, six only were “so much injured as to require heading in,” and these were of the most tender kinds, besides being in a very feeble condition. It is true, we had no fruit on them this year, in consequence of over-cropping the previous season; but our trees were saved, all of which would have been destroyed had they been in the open air. Of plums there was an abundant crop because they did not bear much last year. Of figs a heavy crop, and a splendid crop of grapes of the foreign varieties. Do these results show that our trees were “chilled by frost and excited by heat,

either of which alone would be injurious to the crop, and in combination destructive of the trees," which the Editor says "has proved to be the case"?

If our orchard-house is to be the criterion by which these structures are to stand or fall, we will insist on its being fairly represented, we will have it judged by facts, not by imaginary or speculative results, and we emphatically protest against having it made the raw head and bloody bones that the Editor labors to make it, without having even once visited it through the season, and without a shadow of proof to support him.—JAMES WALSH, late gardener to G. G. Hubbard, Esq., Dec. 1861.

Societies.

WORCESTER HORTICULTURAL.

This flourishing association, located in the centre of a rich agricultural region, contains among its members many gentlemen of large pomological experience, and by a recent vote of the society it was decided to hold conventions on fruit, in the hope of eliciting that information which would be so valuable to the public. These reports have been sent to us, and though too long for our pages entire, we present such portions of them as we think will be especially interesting:—

The first meeting was held March 27th, Vice President Jaques in the chair.

The committee appointed to report a list of the six best **CHERRIES** for local culture submitted the following:—May Duke, Black Tartarian, Knight's Early Black, Black Eagle, Downer's Late Red, and American Amber.

Gov. Lincoln moved, and it was carried, that the society adopt the report of the committee in these words:—"The society recommend the above, as a list of six varieties valuable for cultivation."

PEARS.—Lists of what, in their estimation, are the "best eight pears for market cultivation," were then submitted by Judge Green, S. A. Colton, John C. Ripley, O. B. Hadwen, James F. Allen, W. F. Wheeler of Grafton, and the chairman.

The chair regarded the Buffum as the most profitable pear in this county. There is one belonging to Mr. Edward Earle, which has produced fruit to the average value of \$23 per annum for the last ten years. Would like to learn the general opinion of the Glout Morceau. Has them upon land that would bear seventy or eighty bushels corn to the acre, but cannot get a crop. His land is however underlaid with a heavy clay.

Mr. S. V. Stone has a Glout Morceau which bore very heavily, both last year and the one previous.

The chair thought highly of the pear itself, and would like to know the nature of the soil upon which it was grown by Mr. S.

Mr. S. H. Colton moved that the whole subject be referred to a committee of three, with instructions to report a list of the eight best market pears to the next meeting.

Moved by O. B. Hadwen, that lists of the "best twelve varieties of pears for domestic use" be presented to the next meeting. Adopted.

Mr. James F. Allen thought there was no better bearer, in standard, than the Vicar of Winkfield. Mr. Colton esteemed it good for nothing when grown and ripened.

Gov. Lincoln had experienced as good success with the St. Ghislain as with any. The soil is a tenacious clay, covered by a rich loam. His Vicar of Winkfields have borne well, but not so lately.

Dea. Butnam is of opinion that pears improve with the age of the tree. Upon this, Dr. Workman remarked that he had formerly been discouraged with the Louise Bonne de Jersey. It has improved exceedingly of late years.

Mr. Stone spoke of the Iron as one of the best market pears. It is a good bearer and excellent for preserves. He has kept them until the 1st of May. Mr. Colton considered the Iron better than the Catillac. With this the chair agreed, stating that he had forgotten the Iron.

Mr. Wheeler of Grafton hoped that something might be done to supply information to beginners and inquirers like himself—about the soils, situation, &c., and the necessary conditions of cultivation. Col. Wilder had instructed him to underdrain and practice thumb pruning, i. e., to check the growth of the wood in order to ripen it and enable it to furnish more saccharine matter to the fruit whenever it is formed.

Gov. Lincoln said that his attention had been particularly arrested by a remark of some gentleman, during the discussion, that the size and qualities of some varieties of the pear would be greatly improved by a severe pruning of the tree while fruiting. He felt constrained, by his unfortunate experience, to offer a word of caution against recourse to any such practice. He thought, whatever might be the effect upon the fruit of a single season, that, of all fruit-bearing trees, the pear would least admit of *severe pruning*.

If you destroy the due proportion of the branches to the root, you assuredly impair the health and vitality of the tree. In several instances, in which he had attempted to change, too suddenly, the character of the fruit, by the process of engrafting into the branches, he had suffered the loss of the tree itself. The scions would push forward vigorously, for one or two years, and then scion, stock, and root would perish together. In engrafting into the top, he would not operate upon more, at most, than *one fourth* of the limbs in the same season; nor, in *pruning*, would he advise to the very free removal of even apparently redundant branches of much size. The knife may be used safely upon twigs and small branches, but the saw always sparingly, and never to the removal of large portions of the top, at one time. From neglect of this caution, he had, within a few years, lost many of his most thrifty trees.

Several gentlemen present confirmed the observations of Gov. Lincoln. Among others, Mr. Edward Earle remarked that his own experience in grafting old and considerably grown pear trees had been similar to that of the governor. He had lost, at sundry times, a number of very fine stocks. He now makes it a rule to be three or four years changing the tops of pear

trees. That is, he commences by grafting a small portion; and so on until sufficiently changed. I have thought, and my experience shows, that the tops of native stocks will bear changing much more rapidly than *grafted* stocks.

[Gov. Lincoln always gives good advice. His remarks are strictly true and should be remembered.—Ed.]

APRIL 5.—In the absence of Hon. Alexander Bullock, president, senior vice president John Milton Earle in the chair.

The committee upon the Eight Best Market Pears, made the following report:—

Committee—George Jaques, chairman; D. Waldo Lincoln, Samuel H. Colton.

At the meeting of the society, on Thursday, the 25th of March, several gentlemen present prepared lists of what they would recommend as the best eight varieties of the pear for cultivation for the market. The number of lists was ten; the whole number of pears recommended was 26, which are numbered about in the order that they begin to be in eating:—

NAME.	NO. OF VOTES.	NAME.	NO. OF VOTES.
SUMMER VARIETIES.		13. Buffum, - - -	7
1. Doyenne d'Ete, - -	2	14. Fulton, - - -	3
2. Madeleine, - - -	1	15. Marie Louise, - -	1
3. Beurre Giffard, - -	3	16. Doyenne Defais, -	1
4. Rostiezer, - - -	4	17. Urbaniste, - - -	2
EARLY AUTUMN.		18. Beurre d'Anjou, -	5
5. Bartlett, - - -	9	19. Dix, - - -	1
6. Saint Ghislain, - -	1	LATER AUTUMN AND WINTER.	
7. Belle Lucrative, -	3	20. Duchesse, - - -	6
8. Flemish Beauty, -	2	21. Le Curé, - - -	2
9. Paradise d'Automne, -	2	22. Lawrence, - - -	2
MIDDLE AND LATE AUTUMN.		23. Glout Morceau, -	1
10. Beurre Bosc, - - -	2	24. Winter Nelis, - -	4
11. Seckel, - - -	5	25. Iron, - - -	1
12. Louise Bonne de Jersey, 6		26. Easter Beurre, - -	1

The eight having the most votes were—Bartlett, 9; Buffum, 7; Louise Bonne de Jersey and Duchesse, 6 each; Seckel and Beurre d'Anjou, 5 each; Rostiezer and Winter Nelis, 4 each.

The committee were also instructed to prepare a list of eight varieties of the pear, such as they themselves would recommend as best for market cultivation; also, to state the manner of cultivation, whether on pear or quince, and the soil adapted to each variety.

After some discussion, it was unanimously agreed to recommend the following eight pears, which are numbered in the order of their ripening (p. meaning pear roots, q. quince ditto):

- | | |
|-----------------------------|---------------------------------|
| 1. Rostiezer, - - - - p. | 5. Louise Bonne de Jersey, - q. |
| 2. Bartlett, - - - - p. | 6. Seckel, - - - - p. |
| 3. Flemish Beauty, - - p. | 7. Duchesse, - - - - q. |
| 4. Paradise d'Automne, - p. | 8. Beurre d'Anjou, - p. or q. |

For four more varieties, making a dozen market pears, the committee would add four autumn pears, numbered as they come into eating, viz:

1. Buffum, - - - - - p. 3. Beurre Bosc, - - - - - p.
2. Fulton, - - - - - p. 4. Marie Louise, - - - - - p.

The committee cannot undertake to report in regard to the soil and cultivation specially adapted to each variety of the fruits above recommended. They would however, state, in a general way, the conditions which they consider essential to the successful cultivation of nearly all pears. These are:

- 1st. High cultivation; especially of certain varieties, as the Seckel, &c.
- 2d. Very deep tillage.
- 3d. Underdrainage, wherever the subsoil is clay, hard pan or retentive in its character.
- 4th. Thinning-out of the fruit, wherever there is a tendency to over bearing.

5th. Protection from the wind. This is very important. The protection may be a high wall or board fence, or belt of evergreen trees, which, where the room can be afforded, is, perhaps, the best of all, being at once useful and ornamental. Respectfully submitted, GEORGE JAKES, Chairman.

D. W. Lincoln concurred in the report. He would not, however, recommend the Buffum. Thinks the most of its reputation is due to the fabulous prices of the fruit from a tree belonging to his friend, Mr. Edward Earle.

APRIL 18.—D. Waldo Lincoln, Esq., in the chair.

Vice president John M. Earle, from the committee to report the "twelve best varieties of pears for domestic use," submitted the following list:

1. Beurre Giffard, - - - on p. 7. Louise Bonne de Jersey, q.
2. Rostiezer, - - - - - p. 8. Seckel, - - - - - p.
3. St. Ghislain, - - - - - p. 9. Sheldon, - - - - - p.
4. Bartlett, - - - - - p. 10. Beurre d'Anjou, - - - q.
5. Paradise d'Automne, - - p. 11. Lawrence, - - - - - p.
6. Flemish Beauty, - - - p. 12. Winter Nelis, - - - p.

Voted to act upon the varieties recommended, *seriatim*.

1. Beurre Giffard. Jonathan Grout considers it a good and regular bearer. It is handsome, and always fair; quality, best. S. H. Colton deemed the fruit always fair, and nearly first rate. J. M. Earle said that it ripens by the fifteenth of August. They are of one uniform quality. He thinks that they keep as well, if not better, than the fruit of any other early pear. Adopted.

2. Rostiezer. J. M. Earle remarked that it was a most constant and abundant bearer. In Boston they want all they can get. In this opinion D. Waldo Lincoln decidedly concurred, and, without dissent, the Rostiezer was adopted.

3. St. Ghislain. J. M. Earle characterized it as a great bearer and free grower; the tree being also very hardy. It is good on pear or quince. S. H. Colton and the chair endorsed these statements from their own experience. The St. Ghislain was adopted.

4. Bartlett. No one appearing disposed to challenge the excellence of this favorite fruit, on motion, it was adopted by acclamation.

5. *Paradise d'Automne*. The chair and Edward Earle spoke of it in the highest terms. J. M. Earle said that it has yielded him more than any other variety. It should be picked in season—at just the right time. Adopted.

6. *Flemish Beauty*. Edwin Draper and Dr. R. Woodward think that it blows off. Mr. Draper has been troubled by its rotting at the core. J. M. Earle thought that it would neither blow off nor rot at the core, if picked at the right time. Samuel V. Stone wanted to know when would be the right time for picking; might it not be picked either too early or too late. J. M. Earle thought not; if picked when half grown all the better. Edward Earle found it cracked very easy. The chair's experience was that it blew off. He suggested that the *Fulton* is a better pear. J. M. Earle considered the *Fulton*, though small, a very fine pear, yet not equal to the *Flemish Beauty*. Gov. Lincoln remarked that he had got very excellent pears from the *Fulton*, but none at all from the *Flemish Beauty*. Upon motion, voted, that the *Flemish Beauty* be passed over.

7. *Louise Bonne de Jersey*. On quince. No voice being raised in objection, on motion of Edward Earle, it was adopted.

8. *Seckel*. Adopted at once, and with entire unanimity.

9. *Sheldon*. J. M. Earle thinks it has a very high flavor. Edward Earle likes its appearance. S. H. Colton said that it must be grown upon a pear stock. As a general rule, our American pears do not do well on quince. *Sheldon* was adopted.

10. *Beurre d'Anjou*. J. M. Earle esteemed it a handsome pear and a good bearer; appearances are favorable. S. H. Colton thought that it gave good promise, although of quite recent introduction. The chair had the highest opinion of it; he had often had trees loaded down to the ground with their burden of fruit. The *Beurre d'Anjou* was adopted.

11. *Lawrence*. Edward Earle esteems it a good bearer. J. M. Earle said that when it has some age, it is a constant and free bearer. S. V. Stone would inquire if Mr. Earle considers the *Lawrence* as good a pear as the *Glout Morceau*? He thought few pears could be compared with it. Mr. Earle's reply was not wholly understood in the buzz of conversation. He was understood to remark that the *Glout Morceau* was unreliable—dependent too much upon the character of the season. Mr. Stone responded that his experience differed. He had raised the *Glout Morceau* at all seasons, and had no difficulty in so doing. The *Lawrence* was adopted.

12. *Winter Nelis*. Edward Earle moved its adoption. The chair would not have recommended it. He had tried it for twenty-five years, and could with difficulty raise a crop. Other gentlemen followed in its favor, whose remarks were nearly inaudible. *Winter Nelis* was adopted.

No. 6. The consideration of the *Flemish Beauty* was then resumed. It was moved to substitute the *Beurre Bosc*. The chair, and Messrs. J. M. Earle, S. H. Colton, and Edward Earle participated in the discussion. *Flemish Beauty* adopted.

And thus was closed the list of the twelve best.

The committee also begged leave to report a list of twelve other pears for domestic use, should the first be insufficient, as follows:

- | | |
|--------------------------------|---------------------------------|
| 1. Belle Lucrative, - p. or q. | 7. Beurre Clairgeau, - - p. |
| 2. Dearborn's Seedling, - p. | 8. Dix, - - - - - p. |
| 3. Urbaniste, - - - p. or q. | 9. Beurre Bosc, - - - p. |
| 4. Glout Morceau, - - - q. | 10. Beurre Superfin, - p. or q. |
| 5. Marie Louise, - - - p. | 11. Duchesse d'Angouleme, q. |
| 6. Doyenne Boussock, p. or q. | 12. Doyenne de Comice, - - q. |

And, after a conversational discussion, in which a number of gentlemen indulged, it was voted to accept this supplementary report, and to adopt the list therein recommended.

Massachusetts Horticultural Society.

In our record of the January meeting we omitted the report of the Finance Committee, which was then made, but of which we had no copy. We now present it, as it will be interesting to learn the financial condition of the Society:—

RECEIPTS FOR 1861.

By cash in treasury, December 31, 1860,	-	-	-	\$940 83
INCOME.				
“ dividends from stocks, - - -	-	-	\$1,544 00	
“ assessments collected, - - -	-	-	912 30	
“ receipts from Mount Auburn, - -	-	-	5,022 54	
“ rents collected and items, - - -	-	-	221 04	
“ receipts from Annual Exhibition, -	-	-	241 75	
“ interest from Parker's note, - -	-	-	3,600 00	
				11,541 63
“ Spring Exhibition, \$63.50; donation from members,				
“ \$132.00, - - - - -	-	-	-	195 50
“ invested—Legacy from the late Hon. B. V. French, -	-	-	-	500 00
				\$13,177 96

* PAYMENTS FOR 1861.

EXPENSES				
To premiums and gratuities, - - -	-	-	\$2,765 00	
“ salaries, \$650; chairmen of committees, \$200.00,	-	-	850 00	
“ printing and advertising, - - -	-	-	455 05	
“ portraits and frames, - - - -	-	-	869 70	
“ library, (\$419.84 belonging to last year,) -	-	-	1,019 68	
“ special awards and compensation, (Kenrick,)	-	-	485 00	
“ expenses of Annual Exhibition, - -	-	-	614 64	
“ rents, - - - - -	-	-	1,550 00	
“ mechanics' and miscellaneous bills, -	-	-	971 94	
				\$9,581 21
“ extra expenditure—Mt. Auburn catacombs, \$500.00; water-				
“ works, \$1,500.00, - - - - -	-	-	-	2,000 00
“ donation to soldiers' fund, - - - -	-	-	-	195 50

To investment—5 shares Western Railroad stock, (\$500 of it				
French fund,) - - - - -				564 50
" cash in treasury, December 31, 1861, - - - - -				836 75
				<hr/> \$13,177 96

PROPERTY OF THE SOCIETY.

Permanent—Amount invested in the Massachusetts Hospital				
Life Insurance Co., - - - - -				\$4,000 00

Being the donations of—

Josiah Bradlee, Esq., - - - - -	\$1,000 00
Theodore Lyman, Esq., - - - - -	1,000 00
Samuel Appleton, Esq., - - - - -	1,000 00
John A. Lowell, Esq., - - - - -	1,000 00

\$4,000 00

Amount of legacy of late Hon. Benj. V. French, in 1860, of				
\$500, invested in five shares of Western Railroad, cost -				564 50

Amount of legacy of Hon. Theodore Lyman, - - - - -				10,000 00
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Invested in 1st Mortgage Bonds of the Connecticut and Passumpsic Rivers Railroad, \$4,500; 6 shares of Boston and Maine Railroad, and 53 shares of the Boston and Worcester Railroad.

20 shares of Saco and Portsmouth Railroad, - - - - -	2,000 00
10 shares Boston and Maine Railroad, } - - - - -	7,500 00
65 shares Fitchburg Railroad, }	
Library, \$2,500; furniture and glass, \$2,500, - - - - -	5,000 00
H. D. Parker's note, secured by mortgage, - - - - -	60,000 00
Cash on hand December 31, 1861, - - - - -	836 75

Boston, December 31, 1861. \$89,901 25

Saturday, March 1, 1862.—An adjourned meeting of the Society was held to-day,—the President in the chair.

Walter Russell, Alex. McDonald, and Geo. D. Oxnard were elected members.

Adjourned one month to April 5.

April 5.—An adjourned meeting of the Society was held to-day,—Vice President Wight in the chair.

The committee appointed to procure a suitable location for building a new hall were authorized to proceed in their labors, and purchase any property which in their opinion might be considered desirable.

On motion of C. M. Hovey, the Executive Committee were instructed to consider the propriety of paying a salary to the Corresponding Secretary, or in some way rewarding him for his services.

The Executive Committee to whom was referred the report of the committee to consider whether any further action was needed in regard to premiums and gratuities, approved of a portion of the report, and it was accepted by an unanimous vote.

Mrs. H. W. Wellington and Daniel Murray were elected members.

Adjourned one month to May 3.

Horticultural Operations

FOR MAY.

FRUIT DEPARTMENT.

The early part of April was accompanied with a few warm days which gave a rapid start to vegetation, but since then it has been cool with frost, and no farther advance has been made up to the present time. The frosts were not severe enough to do any injury, and there is every prospect for a fine crop of fruit.

GRAPE VINES in the grapery will now have set their fruit, which will be swelling rapidly. Give more air now, and top all laterals extending too far, and commence thinning the berries as soon as they attain the proper size; damp down the house, morning, noon and night. Vines in the cold grapery will be in flower this month; air freely in good weather, but close early to retain a good warmth; water the walks, and maintain a moist, humid atmosphere. Vines in pots now swelling their fruit should be freely watered. Repot young stock intended for fruiting next year. Vines in the open air should be trained up neatly to the trellis or a stake, pinching off shoots not wanted.

PEACH TREES should be liberally watered, and have an abundance of air. Pot young plants if more trees are wanted.

ORCHARD HOUSES should now receive careful attention; close early to guard against sudden changes of temperature.

GRAFTING should be continued this month.

STRAWBERRIES should be planted; it is the best month in the year for making new beds. Stir the soil between the plants in old beds.

RASPBERRIES AND BLACKBERRIES should be tied up to a trellis or neat stakes; dig up all superfluous suckers which exhaust the old plants.

FIG TREES may now be put into large pots and brought forward in the grapery or orchard-house.

PRUNING FRUIT TREES should be continued at all leisure opportunity.

MANURE FREELY and spade lightly the soil around fruit trees, mulching if the weather should prove dry.

FLOWER DEPARTMENT.

The season pushes now, and everything should be in readiness to bed out as soon as the weather becomes warmer. Remove many hard-wooded plants, done flowering, to frames, where they can be shaded from the hot sun, and make more room for pelargoniums and other plants coming into flower. Keep the camellias well syringed and watered, and repot and put in order all plants that require it.

PELARGONIUMS will now show the effects of good or poor treatment. If well grown they will be superb specimens of foliage and flowers. Water frequently with liquid manure and turn the plants round often to keep a handsome form; air freely and shade from the hot sun.

CAMELLIAS should be freely watered and syringed every day.

AZALEAS still in flower should be freely watered and shaded from the hot sun. Prune in all straggling plants out of bloom, and repot if fine specimens are wanted. Stop the young growth so as to form bushy plants; propagate for a young stock now.

CHRYSANTHEMUMS intended for large specimens should be repotted.

ACHIMENES should be potted off.

HEATHS should be removed to the open air and be plunged in tan or rotten leaves.

JAPAN LILIES should be repotted into their flowering pots.

FUCHSIAS should have attention; nip in the young growth to form bushy plants.

ORCHIDS may now be repotted.

FERNS should be repotted.

GESNERAS should be repotted and started into growth.

ORANGE TREES should be repotted; stop the young shoots so as to form handsome bushes.

PROPAGATE young stock for winter blooming, such as *Eupatoriums*, *Stevias*, *Begonias*, &c.

FLOWER GARDEN AND SHRUBBERY.

The lawn will now require particular attention; give it a thorough rolling after the first rain and continue to roll every week till a good firm surface is obtained; mow as soon as a sufficient growth has been made. Rake and roll the walks and keep the surface of the shrubbery neat and clean. Remove all rubbish from the flower beds and borders, and dig, rake and clean the surface.

CARNATIONS AND PICOTEEES should be planted as early as possible to get a vigorous growth.

HERBACEOUS PLANTS should be transplanted at once.

TREE CARNATIONS planted out now will flower all summer.

GLADIOLUSES should be planted now; and for a succession, plant two weeks later.

HARDY ANNUALS of all kinds may be planted immediately.

DAHLIAS may be planted the last of the month.

RHODODENDRONS AND AZALEAS may be planted this month; it is the best season.

VERBENAS and other bedding plants may be planted out after the 20th of this month.

ERYTHRINAS may be planted out this month.

PEONIES should be neatly staked as they attain their growth.

CLIMBING PLANTS of all kinds should be neatly trained to the trellis or whatever support they may have.

ROSES should be pruned immediately; manure the ground heavily, and spade lightly.

EVERGREENS of all kinds may be transplanted any time during the month.

CANNAS may be planted out the last of the month.

ASTERS raised in pots or boxes should be planted out the latter part of this month.

ROSES.

ALREADY the bursting buds and opening leaves betoken the rich store of pleasure the rose season affords, awakening in anticipation the luxury of a morning stroll or a twilight ramble among the rose beds, gathering fresh blossoms wet with the early dew or evening shower. Yet how much more delightful the actual enjoyment of so much beauty, when, ere the sun has gilded the horizon, we search among our latest addition of new varieties and gather the first opening flower of some choice novelty, or, passing to well known faces, pluck the familiar and dazzling bloom of the "General," and, as a fit companion for such a hero—now that they are performing such heroic acts—La Reine is none too good; or, if a poetical friend is preferred, Shakspeare shall be selected. But why may not others enjoy the same companionship, when we have not only Ladies, but Dukes and Barons and Lords and even Giants, of high blood. Who would refuse Baron Prevost such a place, or Lord Raglan or the "Giant;" and, if we add the fair and lovely Lælia and the snowy-robed Madame Hardy, who shall say we have not a select coterie of friends?

We revel among the roses. We enjoy them at morn and eve. Even the noonday sun finds us often among our favorite plants. We load our breakfast table with the beautiful and fragrant flowers, gathered with the morning dew, and literally feed upon their loveliness. Twilight finds us reluctantly leaving their companionship, and our library table is burdened with freshly-cut blooms, whose sweetness fills the air. Our Silver Goblet, the laurels of a sharply contested "Thirty," is overshadowed by their glorious buds, which hang in rich profusion. We light our cigar, and close the summer eve in dreamy contemplation of their exquisite forms, their glowing tints, and their wonderful perfection. Though roses to us are no rarity at any season of the year, it is only in the abundance of the rose season that we can actually enjoy them in all their rich luxuriance and loveliness.

An English clergyman, who is not only a good cultivator but one of the most ardent admirers and successful exhibitors of the rose, thus closes an account of the great National Rose Exhibition, held in London every year:—

“How lovely are the roses in the soft light of eventide! They have acquired the fineness of petal, the brightness of color, which they had lost awhile beneath the summer sun, and with their rosy faces washed with dew, seem to rest, rejoicing in the cool tranquillity of the declining day. General Jacqueminot, and the Giant, fold their martial cloaks around them, as though preparing for sleep; but awake or nodding, erect or pendent, cupped or expanded, all are beautiful. Most beautiful, as though flushed with victory, those who have been destroyed at ‘the National.’ The old favorites seem to exult that they are not wholly superseded, and the Belles, more recently introduced, to pride themselves on their first conquests and to foresee new victories. I take off my hat to them, young and old, wishing them ‘bon repos,’ and after happy morrows peaceful rest in the pot pourri jar.

Parentally, on my way to bed, I must take a peep at the nursery, and say good night to the young ones. Good night to master *Eugene Appert*, at rest upon his noble leaves. He has not attained to the desiderated size, but his complexion is glorious, and, until some novelty shall surpass him in shape and circumference, no rose garden can be complete without him. This season has not been so favorable to him as the last, but few roses have attracted more attention on the tree, especially from the brighter eyes and rosier lips of our kind. Good night to Anna de Diesbach, the largest rose I have seen this summer; to the two Franks—Francois Premier, so vivid in coloring and so compact in form, and Francois Arago, of rich claret hue, and to those who, with me, think much of contrasts, most valuable for exhibition; to Armide, circular and cheerful, well shown by Messrs. Fraser, at the National; to Homere, a very pretty, promising tea—“*aliquando bonus dormitat Homerus*,” and now I begin to nod; and so alas good night to the beautiful Comtesse Cecile de Chabillant, (let us call her *the Countess*, my brothers, since life really is too short, and our tallies also, for these etymological excesses,) of whom I need say little, seeing that Mr. Andrews, pitying

my sleepiness, has bravely ventured 'to paint the rose,' and her sweet ladyship is now before you. • When I first beheld her, escorted by a knight of the Bath division, Mr. Tiley, to Hanover Square rooms, I tendered admiration and allegiance—

‘When first I saw thy face, I resolved
To honor and renown thee.’

And I have seen her subsequently only to confirm my love. Ample as fair, (I blush for some of our fraternity, who persist in describing duchesses, countesses, mesdames, and even mesdemoiselles, as ‘robust’ and ‘full,’) of perfect symmetry and very ‘constant,’ she takes a place at once by the throne of our queen of flowers, and will be the beauty of many a ‘drawing-room,’ the belle of many a box. Good night!”

But it will perhaps be thought quite superfluous to eulogize the rose. Its claims to our affection are interwoven with our existence, and if our admiration is not always expressed, it is because the occasion does not offer, or our attention is occupied with other objects. The brow of the young bride is wreathed with fresh buds, and sorrowing hearts strew them over the bier of dear friends.

Lost in our reverie, we return to the subject matter of this chapter, which was to direct the attention of our readers to the rose and its culture. The season is approaching, and indeed has already arrived with many of them, when the roses will begin to display their beautiful flowers. It is the season for young amateurs who intend planting, to make themselves familiar with the best varieties; for in the multitude of new sorts, all good, there are some which are more desirable than others, especially where garden room is limited, and but few can be planted. Proceed, then, to visit the best collection at hand, and, with pencil in hand, note down the names of such as please your taste; reserve your list till autumn or spring, and then order such as your memorandum indicates; or, if there is no opportunity to do this, send your order, at the proper season, to a reliable nurseryman, and leave the choice to him to send you such a collection as your space, large or small, may require. He will often do better for you than you can do for yourself; for, of the free-growing

and hardy kinds, he generally has a good stock, while the more slender and less hardy sorts which you might select, are often hard to get, and still harder to keep when you get them. Avoid budded roses by all means. Keep away from auction rooms. Give pedlars the cold shoulder. Our climate is too severe for tree roses, and, beautiful as they are, we must forego the pleasure of their cultivation. So much we advise amateur rose growers.

And now, as some guide in the proper selection of a limited collection, and as an aid to all who wish to look for such as are really beautiful, we volunteer our taste in the selection of twenty-four superior roses, supposing hardy sorts are wanted for out-door culture. We give them according to the classes to which they belong:—

Gállica: Boula de Nanteuil, Shakespeare, Amiable.

Hybrid Bourbon: Coupe d'Hebe, Paul Perras, Madame Plantier, George IV.

Damask: Madame Hardy.

Moss: Common Moss, Marie de Blois, Princess Adelaide.

Alba: Madame Legras St. Germain.

Hybrid Perpetual: Jules Margottin, General Jacqueminot, Louis Peyronny, Lord Raglan, Anna de Diesbach, Baron Prevost, Auguste Mie, Sydonie, La Reine, Triomphe de Paris, Geant de Batailles, and Duchess of Sutherland.

To name twenty-four roses out of the hundreds of beautiful varieties is a difficult task, when all have so many claims to our admiration. Those we name are mostly show flowers, where the object is to exhibit in village or city horticultural societies. Other sorts are quite as effective in the garden, and many equally good for show purposes, but these are sufficient, with good culture, to enable the amateur to cut twenty as fine flowers as need be seen. If the newer ones are any better, they are good enough.

In conclusion, we must urge more attention to the rose. It is easily grown; will flourish in almost any soil if well manured,—and here let it be remembered they revel in it, as we do in their flowers. Don't be afraid to prune—a fear which ruins hundreds of fine collections. Syringe in good season with oil soap for the destruction of that pest, the rose

slug; gather your flowers, whether for the table or for exhibition, at *daylight*, and you never need want for plenty of the most beautiful roses the patience and skill of the French cultivators have produced.

HALF HOURS WITH OLD AUTHORS.

BY WILSON FLAGG.

"THE BOOK OF HUSBANDRY."—By Sir Anthony Fitzherbert.

This is a very rare and curious work, first published in England in 1539, and republished in 1767. Like all the books of that period it is full of quaint sayings, and abounds in Latin quotations. The book treats rather of farming than gardening, but it contains a good proportion of matter which would be interesting to the readers of this Magazine. The treatise is concluded with three or four chapters on theological subjects. The author remarks in his "prologue," as Job said, a man is ordained and born to do labor as a bird is to fly; and the Apostle saith, he that laboreth not should not eat; and the author goes on to speak of the general divisions of labor among the different classes of society.

After various remarks concerning the management of land and of implements, he speaks of the "seed of discretion," and affirms that if a husbandman have of that seed, to mingle it among his other corns, they will grow much the better, for that seed will tell him how many casts of corn every land ought to have. And if a young man hath not sufficient of that seed, let him borrow of his neighbors that have. He thinks they will not refuse him this favor, for this seed of discretion hath a wondrous property, for the more it is used or lent, the more it is; it is a thing that you may give freely and take freely again, and yet you shall have no less of it.

To make a hedge, he says, you must get the stakes of the heart of oak, or of crabtree or blackthorn. Set the stakes within two feet and a half together, unless you have very good eddering, to bind with. And if it be double eddered,

it is much the better, as it gains strength from it and lasts the longer. Let the stakes be well driven, that the point take the hard earth; and when the hedge is made and is well eddered, then take the mallet and drive down the edderings and also the stakes. For with the winding of the edderings the stakes are loosened, and require to be driven down anew.

If the hedge be of ten or twelve years growing since it was first set, then take a sharp hatchet or handbill, and cut the sets in a plain place, nigh to the earth, more than half asunder, and bend them down toward the earth, and wrap and wind them together; but always see that the top lie higher than the root considerably; for else the sap will not run into the top kindly, but in process, the top will die; and then set a little hedge on the back side, and it shall need no more mending for many years. If the hedge be from twenty to thirty years old, then wind in first all the nethermost boughs, and wind them together, and then cut the sets in a plain place, a little above the ground, and more than half asunder, and to let it "slane" downwards and not upwards, for divers reasons. Then wind the boughs and branches thereof to the hedge, and, at every two or three feet, leave one set growing not plashed, and the top to be cut off four feet high, or thereabouts, to stand as a stake, if there be any such, or else set another, and wind the others that are plashed about them. And if the boughs will not lie plain in the hedge, then cut them more than half asunder, and bind them to the hedge; and then shall you not need to mend the hedge, but in few places, for twenty years or more.

If the hedge be old, and consist of great stubs or trees, and thin at the bottom, so that animals can pass under or between the trees; then take a sharp axe, and cut the trees or stubs, that grow a foot from the ground, or thereabouts, in a plain place, within an inch or two inches of the side, and let them "slane downward," and let the top of the tree lie over the root of another tree, and to plash down the boughs of the same tree, to stop the hollow places. And if all the void and hollow places will not be filled and stopped, then scour the old ditch and cast it up anew, and fill with earth all the void places. And if these trees will not reach in every place, to make a sufficient defence, then double quickset it, and

ditch it anew in every place that is needful, and set a hedge thereupon, and cover the sets to guard them from browsing cattle.

The author's remarks concerning highways are curious and instructive. First, and principally, he says, see that there be no water standing in the highway, but that it be always current and running, and have no abiding more in one place than in another. And in summer when the water is dried up, get gravel and fill up every low place, and make them even, somewhat descending or current one way or other. And if there be no gravel nor stones to get, fill it up with earth in the beginning of summer, that it may be well hardened by carriage and treading of feet. And it is to be called well amended if the water will pass away from it. He condemns the custom about London, where they make much more cost than is needed; for there they ditch their highways on both sides, and fill up the hollow and low places with earth, and then they cart and lay gravel above it. And when a great rain or water cometh, and sinketh through the gravel, and cometh to the earth, then the earth swelleth and "bolneth," and waxeth soft, and with treading, especially with carriage, the gravel sinketh and goeth downward, as its nature requires, and then it becomes like a quicksand, and it is hard for anything to go over it. But if they would make no ditch in summer time, when the water is dried up, that a man may see all the hollow and low places, then they should carry gravel, and fill it up as high as the other knolls, it would not "bolne" nor swell, nor become quicksand, and every man might go upon the highway with his carriage, with ease and pleasure.

He has some good hints concerning the transplantation of trees. He says, if you would remove and set trees, get as many roots with them as you can, and break them not nor bruise them. And if there be any root broken, or sore bruised, cut it off close to where it is bruised, with a sharp hatchet, or else the root will die. If it be ash, elm, or oak, cut off all the boughs clean and save the top whole. For if you make him rich of boughs, you make him poor of thrift for two causes. The boughs cause them to shake with wind and to loosen the roots. Then it cannot be obtained so perfect

but some of the roots must needs be cut, and then there will not come so much sap and moisture to the boughs as there did before. If the tree be very long, cut off the top two or three yards. And if it be an apple tree or pear tree, or such other as beareth fruit, then cut away all the "water boughs," and the small boughs, that the principal boughs may have the more sap. And if you make a mark, which side of the tree stands toward the sun, that it may be set so again, it is so much the better.

There are some trees that may be set without roots, and grow well, making roots of themselves. Such are divers apple trees that have knots in the boughs, and likewise poplar and withey (willow). They must be cut clean beside the tree that they grow on, and the top cut off eight or ten feet, and all the boughs between, and be set a foot deep or more in the earth, in good ground. There are four kinds of witheys, that is to say, white withey, black withey, red withey, and osier withey. White withey will grow upon dry ground, if it be set in the beginning of winter; and will not grow in marshy ground. Black withey will grow better on marshy ground, and red withey in like manner; and osier withey will grow best in water and moist ground. These are trees that will soon be nourished, and will bear much wood, and may be cupped once in seven or eight years, but not in sap time. Landlords set many such trees in their marshy grounds, for the production of wood.

Some of his precepts in relation to grafting are worthy of being repeated. It is necessary, he affirms, and also a profit and a pleasure, to have pears, warden,* apples, and other fruits of divers sorts, and, therefore, it is needful to learn how to graft. I will quote only a few of his sayings. Pears and warden should be grafted before any manner of apples, because the sap rises sooner into the pear tree and warden tree, than into the apple tree. And, when grafting the apple, graft that which is cut from an old apple tree first, for that will bud before the graft cut from a young apple tree. For all manner of apples the crab stock is best.

* Warden is a large kind of pear, probably like the pound pear.

He advises all those young gentlemen that intend to thrive, to get a copy of his present book, and read it from the beginning to the ending, so that he may comprehend the chapters and contents of the same; and, by reason of oft reading, he may wax perfect in what should be done at all seasons. When he was at the grammar school he learned two verses, viz.: a drop of water pierceth a stone, by constant falling, and thus a man by constant reading may penetrate his own ignorance with wisdom. He recommends his own book as founded on personal experience, for there is an old saying in Latin, which he thus renders into English: Better is the practice or knowledge of a husbandman, well proved, than the science or cunning of a philosopher, not proved; but there is nothing touching husbandry and other matters contained in this book, but he has had experience of it and has proved the same.

What he says respecting servants I will quote verbatim, simply modernizing the spelling. "Also take heed both early and late, at all times, what manner of people resort to thy house, and the cause of their coming, and *especially if they bring with them pitchers, cans, tankards, bottles, bags, wallets, or bushel pokes*; for if thy servants be not true, they may do thee great hurt, and themselves little advantage. Wherefore, they should be well looked upon, and he that hath two true servants, a man servant and a woman servant, he hath a great treasure."

What the author says of weeds is curious; rather as giving us their ancient English names, than as affording any special instruction. He speaks of divers manner of weeds, as thistles, kedlocks, docks, cockle, drake, gouldes, hawdods, dog-fennel, mathes, ter, (tares,) and divers other small weeds. Dog-fennel and mathes, he says afterwards, are both one.

I will conclude this article with some quaint observations of the author, how to keep measure in spending. He again quotes some verses he learned at the grammar school: He that doth more expend than his goods will extend, no marvel it shall be though he be grieved with poverty. He also quotes the Latin saying of a philosopher: Tene mensuram. That is to say, in English, hold and keep measure. The

husband and the wife that intend to follow the saying of the philosopher, must spare at the brink and not at the bottom. In the beginning of the year they must sell their products, and wait till harvest time before spending; and then see what overplus there be. For all must eat within their tecture. And if you spend in the beginning of the year, and shall want in the latter end, you do not eat within your tecture. He compares such a spendthrift to a horse, that breaks his tecture, riots in the neighboring fields, and is put into the pynfold, (pound). He concludes as follows: "And if thou break thy tecture, and run riot at large, and know not other men's goods from thine own, then shall the *pynder*, that is the sheriff and the bayley arrest thee, and put thee in the pynfold, that is to say, in prison, there to abide till the truth be known; and it is marvel if thou escape with thy life: therefore thou must eat within thy tecture."

CORDON TRAINING OF FRUIT TREES,

ADAPTED TO THE ORCHARD-HOUSE AND OPEN-AIR CULTURE.

BY REV. T. COLLINGS BREHAUT.

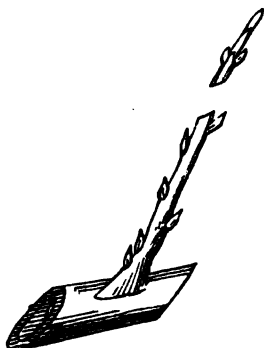
CORDON TRAINING IN PLUMS AND CHERRY TREES.

THERE were plums in the gardens of Charlemagne. The Reine Claude recalls the memory of the first wife of Francis I.; while the Damascus plum came back to Europe among the Crusaders' baggage. Since these periods this pleasant fruit has daily increased in favor. Nevertheless it is not cultivated so much as it deserves to be. Plums are in season for nearly five months, and are invaluable for kitchen use.

Everyone knows this; but that which everyone does not know is the amazing variety which exists in the present day, and among them are some extremely valuable plums. Amongst them are the Early Prolific (Rivers), the Jefferson, now, however, becoming appreciated, and rivalling the Green Gage (Reine Claude of the French), besides a number of

others to be found in the lists of the day. These plums can be kept for some time in muslin bags, and they thus become shrivelled, but luscious in flavor. It is easy, therefore, to have plums for about five months on the table in some form or other.

As to cultivation in orchard-houses they do admirably, but had better be placed out of doors about June or July, so as to improve their flavor, except in cold climates far north. I recommend the Early Prolific as far superior to the Early Yellow, a French sort, which is early, but a shy bearer; then the Gages; then Jefferson; Reine Claude de Bavay, a standard of perfection; the Quetche; Coe's Late Red; and Huling's Superb, for orchard-houses. But every one can choose, and hardly go wrong, where the variety is so very great and really good.



9. FORMATION OF SPURS ON THE PLUM. FIRST WINTER'S PRUNING.

The plum, however, is a coarse feeder, and apt to be very vigorous—too vigorous for fruitful purposes. It must, therefore, be kept in hand. The choice, and not too luxuriant sorts, will suit the Diagonal Cordon; while, for the Horizontal, where there is plenty of room for lateral expansion, select the more vigorous kinds. The plum, contrary to the apricot, improves in flavor from a wall. The treatment of the leaders is as directed for the others, with intervals of twelve inches between them in every case.

In FIG. 9 is seen the young shoot of the plum at the winter's pruning. The top must be shortened in, as in the apricot, by about one-third, keeping it to four inches long. The

pinching-in during the summer is as in the apricot. As soon as six inches long pinch back to four; the next growth (as seen in FIG. 9) pinch to one inch. Pinch the others closely in, as also seen. In the first winter cut back to four inches. During the ensuing summer endeavor to *suppress*, on the shoot, the too vigorous *triple buds*, selecting the *feeble buds* for the work in hand. Never neglect these plum spurs, or they will develop into rank luxuriance, and become unfruitful for several seasons.

If, therefore, a tree be perceived with luxuriant growth on it everywhere, and the extremities waving defiantly in the breeze to the height of some three feet over the wall, which is not unusual, then look for no fruit on any of those parts



10. FORMATION OF FRUITFUL SPURS ON THE PLUM. SECOND WINTER'S PRUNING.

for two years. In fact, they must be cut out, for the spur would become fearfully thick at the base, and compete with the branches for the sap. Then, if cut out, how very trying to the tree is this excision, and what ugly places appear on the branches. Keep, then, those vigorous triple buds suppressed, and work with the weak ones.

Rightly managed, the spur will in a season or two look like that at FIG. 10. This shoot will be shortened to within six inches, *i. e.* the spur will be four in length, and the laterals about two more. In FIG. 10 this is seen. The little lateral at the top is, say, two inches beyond its parent, and has some neat flower-buds on it. Merely shorten it so as to keep it

compact. The next lateral is treated on the same principles, while that below on the left hand is shortened in order to become a future spur, because the buds at that part are naturally leaf-buds, and inclined to extend if cut back to, according to the principles laid down in the beginning, of concentrating the sap into one or two buds. On the other side, the right hand, is seen a group of buds which will be fruitful the next season, and must not be touched, just as in the case of the peach. After the laterals at the top have borne, and the shoot, cut back near the base, has made some other ramifications, then will be time to remove the top and its laterals at A, to let these new shoots take their place, leaving the lowest group of buds alone. Others will also spring up, possibly nearer the base, and so on. There is no difficulty whatever, and it is very easy to keep these spurs within five inches, or even four. Of course, if for a Diagonal Cordon plant, as also apricots, it should be at 36 inches from stem to stem, as in peaches. Above all, avoid all ill-drained soils.

THE CHERRY.

This delicious little fruit, probably the gift of Lucullus to the Italians, requires very free ventilation if kept under glass, and only a few varieties are worthy of this care, except in places where birds abound. The very earliest is the Belle d'Orleans, and, as such, is suitable for orchard-houses. The Duke tribe are splendid, and the New Royal is highly spoken of. I have not seen it. Some late kinds are useful to keep, if there is space for them in the house, and they can be kept in muslin bags. The treatment of the spurs is like plums, and very easy, because the groups of round flower-buds soon form at the base, and by pinching freely in can be kept fruitful. It is a capital plan to *break* the shoots instead of *cutting* them; and as cherry shoots grow very freely, they must not be overlooked: if so, then it is best to break them *partially through*, and let the broken ends shrivel up before cutting them off. If grown as bushes in the house, spur them in *more closely*, and shorten the branches freely. A damp situation is quite unsuitable for a good cherry tree, and they require calcareous matter in the soil. As to Morello cherries,

it is a waste of time and labor to grow them on north walls—better leave them to the birds; while if placed in a fair position, this sort will rival many of the others.

I find cherries do remarkably well as Diagonal Cordons, and they do not, as I feared, grow too strongly to be treated in this way.

I have a high south wall of these cherries intermingled with good plums, and they look very promising, all on the Diagonal plan. Some of my best are the Duchess of Palluau, a new and splendid variety, as a fan-shaped Cordon, and an Early Black, extremely well grown, because the branches, with the addition of a guiding rod, will grow as straight as pipe sticks, and look magnificent. Pyramidal bushes in pots are very handsome. As soon as four leaves appear on the shoots, pinch in to three, and *favor the development* of the base, but not so as to exceed the diameter of the pot.

CORDON TRAINING IN PEAR TREES.

This most valuable fruit is a general favorite, and requires a somewhat peculiar treatment, because it differs from the preceding, especially from the peach, in this important particular, that as soon as a fruitful spur is formed, there is no necessity to *renew it*,—it will last as long as the tree, with due care. No alternation of bearing wood is here needed, as in the peach, and therefore it is the basis of a quite different treatment, which is also applicable to the apple.

The pear, however, resembles the peach and nectarine in this respect: that it is equally suited for the various forms of Cordon training, and thrives best on the Diagonal plan. In fact, there is really no other way of managing it, and the forms in use are based on the same principles, only misunderstood; and this is the reason that pear trees bear well in many localities, although our continental neighbors will not believe it. The pear so naturally follows the system described here, that it leads the pruner into it, do what he will.

Many objections, too, having little real force in the case of the peach, have none whatever in the case of the pear.

It is a curious fact, that though the pear is confessedly a most valuable fruit, and one so generally cultivated, its real

history is the least clearly ascertained. There is a quaint tradition that the Sabines planted the Rousselet pear, on what occasion is not said. The loss of their wives and daughters would hardly be a suitable time for pear planting, unless it was intended to console lost fair ones by reminiscences of home, and "perry;" for this ancient beverage is clearly alluded to by Pliny, who calls it "excellent." From the Sabines we ascend through the dark ages, unilluminated by horticulture, to that period when St. Martin, the good bishop of Tours, had the honor of having a pear named the "Bon Chrétien," as a reward for his virtues. This is about all that is really known about the history of this fruit.

The pear accommodates itself to almost any shape, and thus to describe and to practise Cordon training is equally simple. Choose for a Diagonal Cordon, young and straight trees, *of equal vigor*, one year old from the graft, and, in November or later, lay them in against the wall, just as in peaches, at the same intervals,—and also, the first year, at 60 or 70 degrees of inclination. But do not, as in the case of peaches, cut off the laterals to two buds at planting, as the pear requires all its foliage for the first year. Merely take off one quarter of the extremities of the laterals. During the ensuing summer encourage the growth of the leader, and pinch in a little of the new wood on the laterals to equalize their vigor. In October cut these laterals in to two buds, and reduce the length of the leader by one-third, above a healthy front bud.

The next summer, these two buds, on each lateral, or spur now, will develop themselves. As soon as these new shoots have reached six inches in length, pinch them back to four inches, or about eight or nine leaves. The next growths pinch back to one inch more, and so on. Any short shoots near the base which spring out, or any that make their terminal buds under four inches in length, must not be touched, as they are becoming fruitful *of themselves* from being near the leaders, which shows how natural this system is. Pinch so as to leave as much of wood *above* the last bud left as you can, because this exhausts the sap, in drying it up, and the buds below have a greater chance of being left dormant, that

is, not "stimulated to elongate," as Lindley says. The young shoots must not be allowed to grow till they are, say, ten inches long, instead of six inches. If they have been thus unwisely neglected, then it is too late to pinch in. If you did, some of the buds at the end would break out into short laterals, just what is undesirable. If, however, they have reached to ten or twelve inches unperceived, then bend them backwards, and twist them into a knot. This checks further growth, and they can be cut back in the winter. If they are very vigorous shoots, from the tree being of a powerfully growing kind, or from the shoots themselves being in



11. FORMATION OF FRUITFUL SPURS ON THE PEAR. COMMENCEMENT.

a vertical (a most dangerous) position, then the evil is much greater.

You must partially break them through, about half way, and in addition pinch off the ends of the rampant shoots, and let them hang thus, and shrivel up, till the winter pruning; and even then, probably, a season will be lost before fruit appears at that spot. In the case of Diagonal Cordon training against walls, all forerights must also be preserved. The leader will soon reach eight or ten feet, and can, in the winter pruning, be lowered to 45 degrees, there to remain in future. As in peaches, a strong lateral shoot having been

reserved to form the second leader, which is also, of course, twelve inches distant, it will be shortened-in a little, and so ready to be bent upwards as the second leader next summer. In fact, the principles for forming a Diagonal Cordon, with triple leaders, are similar to those in the peach, with the *marked exception* of the treatment of the spurs. In the winter pruning of these spurs, and the two shoots on each, which having been several times pinched in, look like FIG. 11, they must now be *broken*, not *cut* at four inches. The original spurs add an inch or so to the total length, but it will always be easy to keep the shoots and spurs under six inches. Some of the shoots may have less than the three buds shown, which



12. FORMATION OF FRUITFUL SPURS ON THE PEAR. COMPLETION.

is of no consequence, for one fruitful bud is enough on each shoot. At the completion of the pruning (see FIG. 12), when in winter, the ends are finally to be *cut off*,—*not broken* now, as in FIG. 11, where the object is different. When the ends are finally cut off, as seen, then nothing remains to be done, for the buds will have that appearance of protuberance and roundness that they can no longer be mistaken. They are to remain, therefore, on the shoots, one, two, or three, but never more.

The three leaders will shortly be completed, and the wall look remarkably well. An immense saving of time is gained in this way. There are other irregular forms to be met with among the spurs, but they cannot be entered into in so brief

a work as this is. I will therefore only add, that as soon as a pear has been produced on a shoot, cut off the pulpy part to which it held; but only cut off the *extremity*, otherwise the latent buds, for other seasons, will be destroyed.

HORIZONTAL, VERTICAL, AND SPIRAL CORDONS IN PEAR TREES.

In all of these, the spurs are managed exactly as before described. The Vertical Cordon may have the shape described in the *Miniature Fruit Garden*, page 17; i. e. it may have five leaders trained upwards. Trees on this mode bear very well. It is recommended by Mr. Rivers. The distances and spurs may be as described in the Diagonal Cordon. A great variety of fruits is obtainable in this way,—no small advantage.

Spiral Cordons are treated in the same way as to spurs and distances. Three trees together may thus be grown (each on a single Cordon), if so wished, because the length of the spiral neutralizes the otherwise too great growth. Or one tree with three leaders may be trained thus. Most handsome and prolific trees they will be, and very amusing to watch. They are also very suitable for small gardens, as standards. Indeed, there is no better form in this case.

Standard pear trees require some peculiar variations in their treatment. The shoots which are *nearest* to the main stem, and on the branches, will be generally weak, and should not be interfered with, as they are almost sure to become fruitful in time. The next on the branch, *higher up*, if under four inches in length, should also not be interfered with; but those on the highest portions of the branches will always grow freely, because the sap flows thither vigorously.

That mode, which is the same in principle, of bending the branches towards each other, is also a good way of checking a vigorous tree; but with a weak-growing tree it is useless. Moreover, the ends of the branches thus bent should be let loose in time, or they will dry up, and the vertical spurs must be closely watched.

Horizontal, or fan-shaped pear trees, are trained on these same principles. The lowest stage of branches must not be lowered too soon, as before said.

These must be pinched to four buds, and the further growths each to one bud more. In the winter they must be *broken* at three buds. The *very strong* shoots should be only partially broken through, instead of pinching them off, and broken off *quite* at the winter pruning. The horizontal shoots are more fruit-bearing than the vertical. These last are annoying, and grow fast; of course there are no spurs with two shoots on them, as in wall cordons, but each spur is a single one.

The maximum of inclination of any branch from the main stem is seventy degrees. As the tree grows, shorten the leaders each winter, and the leading side branches by one-third, then by one-fourth, and finally, by one-sixth of their length; so that the tree should grow in a pyramidal form, and the lower stages be *always longer* than those above them. This golden rule is too often neglected; but the tree should not be allowed to become pillar-like by letting the leaders be too long, or by dwarfing the lowest stage of branches.

The following brief notes on training Pyramid standards were made by me at Angers:—

1st year of planting. Plant in November, and trim off one-quarter of the side branches only.

2d year of planting, 1st of training. Leave twelve inches of stem; select six buds for branches and one for a leader. Cut the branches close in to the stem, but not too near. The tree now looks like a walking-stick.

3d year of plantation, 2d of training. The first stage of six branches will develop itself, and allowing an interval of twelve inches, six more buds for the second stage of branches must be chosen, and one to continue the leader. Incise semi-circularly *over* the three lowest eyes to check the sap, and develop them. Pinch in, and break in winter the laterals on the first or lowest stage of branches, now pretty long; keep them much longer than the second stage.

4th year of plantation, 3d of training. Allow twelve inches more of interval for a third stage. The 2d stage will now progress; continue the leader vigorously upwards. Pinch laterals on the 1st and 2d stage to four buds, and break in winter to three buds. One half of the new wood on lowest stage must now be cut off.

5th year of plantation, 4th of training. Another interval; another stage. One-sixth only of the new wood on lowest stage should now be cut off. Regulate the upper stages from this one, and, tapering upwards, ascend to thirty feet by six feet at the base. Manure no deeper than three inches,—i. e. old litter lightly forked in,—and do not disturb the upper soil more than is needed for weeding, &c. Mulch in July, *after* the ground has become heated, but *never before*. Graft pears in August.

As to apples, the treatment is similar to that recommended for pears. Bushes are the best form, with branches connected with their neighbors. These bushes should be at intervals of four feet.

POMOLOGICAL GOSSIP.

THE CHILI STRAWBERRY.—It is highly gratifying to be able to present our readers with an historical account of this famous strawberry, one of the parents of our present improved race of superb varieties. Our knowledge of it heretofore has been imperfect, derived, as it has been, from English botanists and horticultural writers who either have not been fully acquainted with it, or deemed it of too little importance to require especial notice. French works, as we stated some time since, were more complete in their accounts of this species, but the necessity of reading through various authors to get the information, prevented its being given to the public. Thanks, however, to M. Decaisne, who in a late number of the *Jardin Fruitier* has presented a drawing of the fruit, and a very full and complete account of its introduction, cultivation, and hybridization with other varieties. We copy the entire translation, which is, we presume, by Mr. R. Thompson, in the *Gardeners' Chronicle*, and commend it to the attention of strawberry growers:—

“Although this variety is not itself well suited for our climate, yet as so many of our very best strawberries have been derived from it more or less directly, by crossing, and amongst others the British Queen, some extracts from Professor De-

caisne's excellent account of it will doubtless prove interesting and useful to the cultivators of this favorite fruit. Fruit erect, very large, bluntly conical, pale rosy yellow on the shaded side, bright rose next the sun; seeds brown, large, and prominent; flesh soft, tolerably juicy, and sugary, slightly perfumed. Flowers large, petals 7 or 8, yellowish-white, stigmas very large, pale greenish yellow; of stamens there exist only some short thick rudiments. Scapes stiff, elevated above the leaves, covered with long silky hairs. Runners vigorous, but not numerous, often extending 20 inches without forming a joint. Leaves thick, very large, erect; leaflets concave, so as to admit of seeing part of the under surface, on which the silky hairs are so numerous that it appears white. The plants are very vigorous in their native country, and generally so near the sea. At Brest we have seen plants of this strawberry which were 25 years old, and which bore abundantly every year. It withstands badly the vicissitudes of the climate of Paris, and almost invariably dies after fruiting.

As its name denotes, this magnificent species came to us from Chili; but it is not confined to that part of South America, for several authors state that it is also found on the western side of North America, in California and Oregon.

The Chili strawberry was first brought into Europe in 1712, by the French traveller Frezier, an officer of Marine Artillery.

'I have seen it,' he writes to Duchesne, 'cultivated in small valleys where a stream could be brought in for watering it, as it only rains in Chili in two months of the year. Under these circumstances it bears so abundantly that it is sold in the markets by the bushel, or in large measures like common fruits.'

At the present day, as at the time when Frezier visited Chili, the strawberry fields of Conception and those of the environs of Valparaiso are much resorted to by pleasure parties. The name of the Chili strawberry in Spanish is *Frutilla*, and the excursion is termed *Andar a la Frutilla*; great numbers join in it, and after a long journey on horseback they gather and eat the strawberries ripe and fresh in the fields where they grow.

Of the plants brought by Frezier, in 1712, only five survived the six months' voyage. Four of these were given to his friends at Marseilles, Valbonne, and Souzy; the fifth he planted in the neighborhood of Brest, where it gave rise to thousands of plants which were cultivated in the communes of Plougastel, Loperhet, Dirinon, &c.

Professor Decaisne says that at his request M. Guiastrennec of Brest ascertained from good authority that upwards of 444 acres were occupied in the vicinity of that place with the Chili strawberry, which did not appear to require on the coast of Brittany so much care in cultivation as the common market sorts do at Paris. The cultivators take the precaution to plant between the rows of Chili strawberries other sorts furnished with good stamens. The Old Scarlet and male plants of the Hautbois were formerly employed for this purpose, but for these a very vigorous sort, of which the origin is unknown, has been substituted. It is called the *Fraisier de Barbarie*, and appears to be a cross between the Old Scarlet and the Chili. Every year gives rise to accidental seedling varieties in the strawberry fields of Brittany; five or six decidedly good have been preserved. In the neighborhood of Paris and elsewhere, except on the coast, the culture of the Chili strawberry is very difficult, and if attempted, can only be continued by obtaining fresh plants every three or four years from Plougastel. At Verrières, where the Chili perished in unsheltered ground, I have succeeded in preserving it for 12 years by planting it in strong soil under the shade of a large cork tree [*Chêne Liège*, *Quercus suber*,] and by not removing the runners, these being allowed to replace naturally the old plants, the latter soon becoming exhausted. I planted near to the above the Old Scarlet, and successfully all the sorts in the collection; but it seemed to me that the excellent English variety, the *Deptford Pine*, was the best for planting near the Chili in order to set its fruits. I thus obtained some Chili strawberries which on account of their great beauty and late period of ripening proved very interesting.

'The Chili strawberry is very juicy, and much richer in soluble than in insoluble substances. Malic acid, nitrogenized substance, fatty matter, and parenchyma non-nitrogenized is

found in medium proportion. The total amount of sugar in the fixed and more especially in the insoluble matters is greater than in most other varieties. Cane sugar is met with in notable quantity.' *Chemical Examination of the Strawberry*, by M. Buignet.

[The Chili strawberry crosses very readily with other sorts. We have seen it made the common female parent of more than twenty sorts, consisting of both scarlets and pines, and in the crossed progeny characteristics of the respective male parents could be plainly recognized. For instance, the Grove End Scarlet has very widely serrated leaves; and those of its cross with the Chili were also remarkably so. Wilmot's Superb was a direct cross with the Chili. It was large, but had too much of the tender nature of the Chili. It was, however, much employed by the late Mr. Myatt in his crossing operations, and by perseverance he succeeded in raising the British Queen, Myatt's Eliza, &c. We believe that all the first crossings of the Chili will still prove too tender for our climate, but by again crossing these with hardier sorts any number of excellent varieties may be obtained. As already observed the Chili will cross readily with the Scarlet and Pine varieties, but not so with the Hautbois; and we doubt whether the strawberry cultivators at Brest can derive any benefit from introducing the male Hautbois into their Chili plantations. Mr. Knight did once, it is true, effect a cross between the Hautbois and a Scarlet; but it had a very decrepid appearance, with a crumpled foliage, and was, moreover, almost a mule.]”

Mr. Decaisne's account shows how difficult it is to eradicate the characteristics of an original species. Although introduced a century and a half ago, there are now several seedlings, raised however within thirty years, which partake strongly of its habits, viz., withstanding with difficulty the vicissitudes of our climate, and dying off after fruiting, or becoming so feeble as to be of little use. Admiral Dundas, Deptford Pine, and others, are very difficult to cultivate successfully, though superb when they thrive and fruit; and this same weak character has been imparted to many other strawberries.

Another characteristic is its quality of bearing for years when the climate suits it, and its tendency to make but few runners, the plants increasing by off-shoots. Hence the necessity of cultivating many of its progeny in hills, where the plants are not weakened by runners, and then they will succeed for several years in succession. In fact the whole article is full of suggestions and hints, and throws an abundance of light upon the culture of our present varieties of this fruit.

IN-DOOR GARDENING.

FROM THE GARDENERS' CHRONICLE.

THERE are several modes of managing plants in-doors, each of which is in fact adapted to some special sort of plant which thrives under that system, though not under others equally. The greatest number of plants are to be found perhaps in common plant stands and jardiniers; it is of these therefore generally that one has to speak. Then there are the plant cases, which give an exceptional atmosphere, and which being indeed small hothouses, enable us to grow stove plants, and to procure their flowers in winter.

Hanging baskets come under the list of open plant stands; and are often worse off than these, inasmuch as they are smaller, and hang more in a draught of air.

My present object however in naming plant stands, is to remind any in-door gardeners who are now buying new ones, to have such by all means as protect the flower pots, and give room for a *mass* of moss to surround the stems.

The gilt and wire tables and all such like things for plants are infinitely worse than useless; the deepish baskets filled with trays of zinc, the wooden stands also made like boxes, and above all the beautiful fountain-shaped vases of majolica and such like ware, are the things really suitable for keeping plants in health. It is, too, rather difficult to suit the stands sometimes both to the room and flowers, and for this I think that the *English* majolica would answer every want. The French ware of this sort is by me disliked, because I do not

see the appropriateness of "pretty pictures" on the flower vases, but some English majolica shown me some weeks ago (from Phillips's shop in Oxford street), seemed to me quite perfect in soft rich color, such as would harmonize with the flowers, and yet not be out of keeping in any sort of drawing-room. I know that such things are strictly beyond my "indoor garden" province; still they keep plants so healthy and look so charming for them, that I cannot help speaking a word here and there in their favor. I have seen too so many things intended for growing plants, and it is so seldom that any of these are suitable.

I do not know if all window gardeners care as much as I do for raising plants themselves. Bulbs and tubers are certainly for all such tastes the pleasantest, because they grow up so fast and are really pretty during all the time of growth; then, when they die down, they can be so easily stored away in dryness, till the time for repotting and for starting comes—thus giving little trouble as regards the winter, when all our space is precious.

During the last week I have been very busy thus: When my gloxinias and achimenes and begonia *Evansiana* died down last year I let the soil in the pots gradually get quite dry, after which, obtaining a large empty flower pot, I wrapped each tuber, or set of tubers, up in blotting-paper, and put each parcel separately into this said dry flower pot. The pot was then filled up with some dry silver sand and put to stand in a warm fireside corner.

Last week, then, I unpacked these parcels, and there was my begonia with a tiny pink shoot appearing, gloxinias starting with little clots of buds, achimenes Dazzle, looking fat and plump. Each was forthwith placed in a very small-sized flower pot, to be grown on in a warm damp place till the roots touch the pot.

Charcoal drainage, plenty of moss above it, and then some good leaf mould, seems to suit them nicely. I do not water mine at all when they are first planted, the soil, no doubt, being quite damp enough after the dry sand.

The gloxinias ought to be planted nearly on the surface of the soil, and only one in a pot. The beautiful little achim-

enes Dazzle may be in a 4-inch pot, but even though they flower in that in which they grow, they ought not to be planted less than three in a pot, to make a real good show, and even this should be deferred till March, unless indeed we want to force them on, which, for window gardeners, would be the worst sort of bad policy, as they blossom naturally just about August and September, when flowers sometimes are rather scarce in-doors.

Begoniâs, amongst tubers, should about now be planted. Cocoa-nut refuse suits them particularly well, and though I do not know if always *real* gardeners would be so fond of it, it really is to lady florists a very great help and benefit, cleaner than most things (especially if we get the husks and employ a small child to tear them up, shaking the powder out for us) and certainly very good for many kinds of plants. Begonia Evansiana is a great favorite of mine, though I believe that seedsmen consider it to deserve contempt, being very old. There is also a long leaved, pink flowered sort, which is very ornamental from its dark-green foliage just touched with crimson on the stalks and edges, called, I think, begonia incarnata. These roots should be planted in 4 or 5-inch pots and put in a warm place, either in a hotbed or in a heated plant case. They come up very quickly if kept warm and moist, and make most charming foliage. Whether or not old-fashioned, an in-door gardener provided with some evergreens might be well content with nothing more than what tubers and bulbs would give her from one year's end to another. In summer, ferns with begonias make also most charming groups, and when blinds are kept always closed, and geraniums and fuchsias keep falling in the twilight of a London drawing-room, the ferns and begonias apparently enjoy the subdued light and moistness as much as do their owners. I confess it is very pleasant too now and then, entirely to shut up a glazed plant case filled with these, until dew has formed all over it, and the plants are bathed; when it is reopened the freshness and the verdure is so truly charming, and the scent besides, if we have one sweet thing in it, has gathered such intensity, like summer flowers after a fall of rain. This plan indeed is only possible in that one way of

growth, but by constant sponging or frequently bedewing, the plants may be very thriving in an uncovered stand; or a muslin curtain drawn over a bay window will often serve to keep in the plants' more congenial atmosphere. Anything to cause slight dewiness is the great thing for in-door gardeners. Their greatest difficulty is always from dryness and want of light. It is thus, I think, that semi-aquatic plants thrive so well in rooms—Lilies of the kinds that bear much water; *Vallota purpurea*, which may stand in water; *Callas* also, which are never too wet while growing fast and flowering; *mimulus* and *begonias* under the same regime; with all the other kinds of quickly-growing succulent plants, like balsams. The plants that grow so fast as these, generally drink much, and the water that they will stand having in their saucers just keeps the pots in a *safe* state of dampness, and fills the air around with a slight and refreshing dew.

Geraniums, however, are the reverse of all this, for I never did know plants so difficult to keep right in rooms. I believe the truth is, that while they must have air, they must have moisture also. My own best success has been in regularly bedewing them every night and morning, whether or not in blossom; and in always, if possible, letting them stand out of doors at night in the hot summer time to benefit by the dew. This way certainly gave fewest yellow leaves.

FLORICULTURAL NOTICES.

AZALEAS.—The azalea has now become one of the most beautiful conservatory plants. The remarkable varieties recently introduced, by the skill of cultivators, has given a new feature to this family, and rendered it one of the most variable as well as one of the most magnificent plants. The recent exhibitions in London brought out many remarkable specimens and quite a number of new seedlings, the production of English and Belgian cultivators. At the Spring Show of azaleas, by the Royal Horticultural Society, a magnificent collection was exhibited, which formed a bank several plants

deep and a hundred and fifty feet in length; looked upon *en masse* the display was most effective, and the plants individually were finely grown and extremely well flowered. The Arcade was tastefully prepared for their reception, the roof and back wall being lined inside with broadly striped drab and white canvas, put up so as to somewhat resemble an ordinary tent. In the class of 12 azaleas, Mr. Turner of Slough showed a beautiful group, consisting of the Bride, Duchesse and Duc de Nassau, Variegata, Marie, Gledstanesi, Constantia rosea, Eulalie, Gem, Adolphe, and Grand Monarque. From Messrs. Ivery of Dorking came Flower of the Day, white, occasionally striped with red; Criterion, Lord Raglan, Ardens, Vittata, Glory of Sunning Hill, Alba Illustrata, Marie, Bouquet de Flore, Amœna, General Williams, and Alba cincta. Messrs. Fraser of Sea Bridge had small plants, Roi Leopold, Magnifica, a semi-double sort; Rosy Circle, Aurora, Criterion, Amœna, Louise Margottin, Trotteriana, Double White, Mrs. Trip, Barclayana, and Flora.

In the class of new kinds, Mr. Turner showed well-bloomed plants of Duchesse de Nassau, a showy variety with large and striking salmon flowers, tinged in the upper petals with violet; Gem, a tolerably well known rosy salmon sort; Virgin Queen, a good white; Model, large rosy pink; Roi Leopold, salmon, with crimson spots on the upper petals; and Duc de Nassau, large showy crimson. Messrs. Ivery and Fraser also showed in this class, as did likewise Messrs. Todman and Tegg. Among these, Distinction, pale salmon, edged with white; Princess Bathilda, purple, and Dr. Livingstone, finely shaped rosy pink, appeared to be most distinct. In a group of small standard azaleas shown by Messrs. Veitch the following appeared most worthy attention, viz.: Etendard de Flandres, white, occasionally striped with crimson; Etoile de Gand, salmon, broadly edged with white; Rubens, glowing rosy salmon; Consolation, pink; Hortense Vervæne, Herzog, Adolphe von Nassau, crimson; and Bride, a white variety; Messrs. Smith had Duc d'Arenburg.

Our own collection, comprising most of the above varieties and many newer kinds, has flowered in great perfection, and been the admiration of amateurs of this superb flower.

Among other varieties, flowering for the first time and conspicuous for their excellence, are the following: *Grata*, a very deep scarlet flower, with very dark spots on the upper petals; *Comte de Hainault*, double rose, very large, and conspicuously spotted; *Correcta*, rosy orange, very large; *Illustris Nova*, in the way of *Perryana*, but finer; *Variegata Superba*, similar to *Variegata*, but more distinctly edged; *Flower of the Day*, very large, white, striped with rose, petals thick, firm, and habit very fine; *Comte de Hainault*, (*Dalliere*,) white, striped with carmine, fine form; *Alba cineta*, similar to *Criterion*, but larger and better; *Brilliant*, bright scarlet, fine.

In conclusion, we must again commend the azalea to the attention of amateur cultivators. When well grown, tastefully trained and well flowered, no plants excel them in dazzling effect or in their adaptation to ordinary greenhouse treatment, or for effective display in a miscellaneous collection. By judicious treatment they may be had in bloom from December to June.

NEW PETUNIAS.—Notwithstanding the introduction of many fine English and continental varieties, seedlings raised by our own cultivators fully equal if they do not surpass them. Mr. Dooge, recently gardener to C. Copeland of Wyoming, has sent us two or three of his own raising which surpass any we have seen of the single blotched sorts. The flowers are large, well shaped, and conspicuously marked, while the habit is robust and good. We shall give descriptions of them in a future number.

625. *ARISTOLOCHIA ARBOREA* *Linden*. TREE ARISTOLOCHIA.
(*Aristolochiaceæ*.) New Grenada.

A stove plant; growing six or eight feet high; with brownish arctic flowers; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1862, pl. 5295

A somewhat remarkable species, growing erect, to the height of six or eight feet, with very large leaves, two feet or more long, and numerous singular shaped and curiously colored flowers, which appear from the old stems. It was introduced by Mr. Linden, of Brussels, who made a present of the plant to the Royal Horticultural Society of London. (*Bot. Mag.*, Feb.)

626. *CLERODENDRON CALAMITOSOSUM* *Linn.* HURTFUL *CLERODENDRON.* Java.

A stove plant; growing two feet high; with white flowers; appearing in summer; increased by cuttings; grown in light peaty soil and loam. *Bot. Mag.*, 1862, pl. 5294.

"A modest, unobtrusive plant, with its pure white blossoms, as compared with the gorgeous scarlet-flowered species now more commonly cultivated in our stoves." Though having nothing remarkable to recommend it, its neat white flowers, distributed in panicles at the ends of the shoots, will make it acceptable in a large collection. (*Bot. Mag.*, Feb.)

627. *MAXILLARIA VENUSTA* *Lindl.* GRACEFUL *MAXILLARIA.* (Orchidaceæ.) New Grenada.

A stove orchid; with white flowers. *Bot. Mag.*, 1862, pl. 5286.

A charming plant, with very delicate white flowers, touched with yellow in the centre, with two crimson dots upon the lobes. It is a beautiful species. (*Bot. Mag.*, Feb.)

628. *CROCUS OCHROLEUCUS* *Boiss. et Gail.* CREAM-COLORED *CROCUS.* (Iridææ.)

A half hardy bulb; growing four inches high; with cream-colored flowers; appearing in spring; increased by offsets; grown in light sandy soil. *Bot. Mag.*, 1862, pl. 5297.

Recent researches in the East, by M. Boissier, have added six new species of crocus to our catalogue, and among which is the present very elegant and delicate one. It was thought that the labors of the late Rev. Mr. Herbert had exhausted the subject; but it appears new additions are yet to be made. The flowers are cream-colored, with a yellow eye; whether hardy or not is not stated, but it probably is. It is a very fine acquisition.

629. *IRIS LONGIPETALA* *Herb.* LONG-PETALED *IRIS.* (Indeæ.) California.

A hardy or half hardy plant; growing two feet high; with blue and white striped flowers; appearing in spring; increased by offsets. *Bot. Mag.*, 1862, pl. 5298.

This is one of two new species of iris, detected by the naturalists of Captain Beechy's voyage, in California, both very distinct from any other kinds of this extensive genus. One is the *I. Douglasiana* *Herb.*, and the present species, *I. longipetala*. It flowered in the Horticultural Society's gar-

den at Chiswick last summer. The flowers are very beautiful; the inner petals erect, and of an exquisite lavender blue, the outer ones white, and regularly barred with the same tint. It proved quite hardy, and, with a little protection, will probably be hardy with us. It is a highly ornamental plant. (*Bot. Mag.*, Feb.)

630. *LEEA COCCINEA* *Planch.* SCARLET-FLOWERED LEEA.
(Ampelidæ.) Java?

A hothouse plant; growing two feet high; with scarlet flowers; appearing in spring; increased by cuttings; grown in loam, leaf mould, and sand. *Bot. Mag.*, 1852, pl. 5299.

A very handsome plant, with the habit of an aralia, though more neat and compact, under which name it is cultivated in some collections, with reddish stems, and compact cymes of rich scarlet flowers. It is remarkable for its profuse blooming habit, young plants a foot high being covered with blossoms. It is supposed to be a native of Java. (*Bot. Mag.*, Feb.)

631. *STANHOPEA OCCULATA* *Lindl.* EYED STANHOPEA.
(Orchidæ.) Mexico.

A warm greenhouse orchid; with lemon-colored, spotted flowers; grown in pots. *Bot. Mag.*, 1862, pl. 5300.

An old and well known plant, long cultivated in many collections of orchids, but still one of the most powerfully fragrant and handsome species. The flowers are very large, and profusely dotted all over with brownish red. It is variable in the coloring of its flowers, which are usually lemon colored, but occasionally nearly white. (*Bot. Mag.*, March.)

632. *LIGULARIA KÆMPFERI*, var. *AUREO MACULATA*. KÆMPFER'S GOLDEN-SPOTTED *LIGULARIA*. (Compositæ.) China.

SYN. *Farfugium Grande* *Lindl.*

This is the very showy, variegated-foliaged plant, now so well known as *Farfugium grande*, sent home by Mr. Fortune in 1856. It does not seem to have flowered so early in England as in American collections; for Dr. Hooker states that the plants at Kew flowered last autumn, while ours flowered abundantly in the fall of 1860. It is the old plant described by Kämpfer.

When well grown it is one of the finest variegated-foliaged plants. (*Bot. Mag.*, March.)

633. *IOCHROMA GRANDIFLORUM Benth.* LARGE-FLOWERED
IOCHROMA. (Solanææ.) Peru.

A hothouse plant; growing two feet high; with rich purple flowers; appearing in winter; increased by cuttings; grown in peat and loam. *Bot. Mag.*, 1862, pl. 5301.

A very handsome species, with very large, rich purple flowers, which appear in pendent clusters from the axils of the leaves. The foliage is rather large and coarse, but the abundance of its blossoms, and their deep coloring, compensate for this defect. (*Bot. Mag.*, March.)

634. *DENDROBIUM LOWII Lindl.* MR. LOW'S *DENDROBIUM.*
(Orchideæ.) Borneo.

A stove orchid; with yellow and crimson flowers. *Bot. Mag.*, 1862, pl. 5303.

"A splendid and remarkable new species, found on a mountain on the northwest coast of Borneo, at an elevation of 3,000 feet, and introduced and flowered in England in November, 1861. The flowers are produced in dense racemes, seven together, and are fully two inches in diameter, of a charming yellow, set off in a striking manner by six red lines on the lip, with crimson fringes." (*Bot. Mag.*, March.)

635. *ANGURIA WARSCEWICZII Hort.* WARSCEWICZII'S *ANGUREA.* (Cucurbitaceæ.) Panama.

A hothouse climber; growing several feet high; with scarlet flowers; appearing in winter; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1862, pl.

A rather remarkable cucurbitaceous plant, recommended as deserving of cultivation on the rafters of a warm stove, "where it produces its brilliant scarlet flowers in the middle of winter." The leaves are large and trifoliate, and the flowers are small, round, and appear in clusters on the end of long stems, six inches or more in length, which appear at the axils of the leaves. It is a new species, supposed to have been introduced by Warscewicz, but dried specimens have been sent to Dr. Hooker from Panama. It is a very brilliant flowered climbing plant. (*Bot. Mag.*, March.)

DIANTHUS VERSCHAFFELTII.—This new hybrid has recently flowered, and proves to be a really beautiful plant. It will undoubtedly prove to be perfectly hardy, under ordinary garden culture.

ARBORICULTURAL NOTICES.

MORE NEW JAPAN TREES.—The Japan trees introduced by Messrs. Fortune and Veitch, botanical collectors, are now being offered for sale by Mr. Standish and Messrs. Veitch & Son, to whom the seeds and plants were forwarded. Many of these acquisitions were described in our last volume; but the following are additional to such as we have described:—

Pinus Koraiensis, (Siebold). A long-leaved species with beautifully glaucous foliage, and will be a valuable addition to our hardy ornamental pines. The cones are large and highly ornamental. It is found growing in great abundance in the northern parts of Japan, and is recommended as being **PERFECTLY HARDY**, and able to withstand the severest of European winters.

Retinospora lycopodioides. Of dwarf-sized habit, with fine dark green foliage and spreading branches, and forms a very distinct and interesting plant. It is perfectly hardy. It received a medal from the Royal Horticultural Society in July last.

Thuja pygmæa. A perfectly hardy Japanese species, remarkable for its exceedingly dwarf habit. Its beautiful dark green foliage forms a cushion-like tuft, giving it a most distinct and novel appearance, and rendering it one of the prettiest of dwarf conifers.

Thuja (Biota) falcata, (Siebold). A Japan species of the *orientalis* class. It is a plant of very neat foliage, and exceedingly upright and pyramidal in its growth. This perfectly hardy variety is employed in large quantities by the Japanese for forming hedges, for which purpose its close compact habit renders it most suitable.

Retinospora pisifera variegata. A variety of *pisifera* with beautifully white variegated foliage.

Thujopsis lætevirens. This exquisitely beautiful little Japanese evergreen has reached Messrs. Veitch in the form of a small living and perfectly healthy plant. That it is a *Thujopsis*, the peculiar condition of the foliage seems to show, even in the absence of fruit, which has not been seen. It is described by Mr. Veitch as a dwarf growing plant; habit

erect and bushy; foliage of a very light green. To us it looked at first like some erect woolly lycopod, and we almost doubted whether it was a conifer at all until the white spaces on the under side of the leaves, by which *Thujopsis* is known, caught the eye.

Planera acuminata. A noble deciduous tree found near Yeddo, by Mr. Veitch, 90 to 100 feet high, with a remarkably straight stem. In aspect it resembles an elm. It is considered one of the most useful timber trees of Japan.

PYRUS CORONARIA.—This native species of the apple, growing abundantly in the Middle States, is one of the handsomest of our early blooming shrubs. It is of dwarfish growth, with the foliage of a wild apple, and the flowers, which are large and of a beautiful rose color, clothe the branches, giving it a delightful and elegant appearance.

STUARTIA PENTAGYNIA has proved quite hardy the past winter, which, though not severe, was a sufficient trial for this; showing its perfect adaptation to our northern climate. If as beautiful as has been described in our last volume, it will be a most valuable acquisition.

THE LILACS.—So common is the lilac in every garden that a prejudice exists against its introduction into many collections of shrubs. However this may hold good in regard to the old variety, it certainly cannot with the newer sorts, which are of better habit, more abundant bloomers, and quite varied in color. Few shrubs make more show than the *Saugeana*, *Rothmagensis*, and *Sterncreesii*. *Emodi* is also very distinct, growing quite erect and symmetrical, with very dark flowers; it does not sucker like the old lilac. *Prince Notger* is also distinct, being of upright growth, with handsome foliage and nearly white flowers in very large spikes. Our collection of some ten or fifteen kinds has been exceedingly fine, and we commend this neglected shrub to the attention of amateur planters.

THE NEW PYRUSES are fine acquisitions to this showy class of shrubs; *P. coccinea* is very dark, and *P. Moerloosii* is rose, elegantly edged with white; others are of different shades of rose and scarlet.

General Notices.

CULTURE OF VALLOTA PURPUREA.—The treatment of this plant is the same as the treatment of *Agapanthus umbellatus* in every respect; and the treatment of both is very nearly if not the same as the treatment of a pot Tom Thumb geranium the year round, only that Tom would stand more heat with less harm than the Vallota. As for the size of pot, small bulbs of Vallota require little pots, as No. 60's; half-grown bulbs to be in 48's, and full-grown ones to be in No. 32-pots. Vallota never goes to rest and is very thirsty in summer; and young bulbs will grow and increase in size in one half the time if they were planted out in warm borders when the bedding-out is finished at the end of May, and to be taken up with the bedding plants in October. That is the sure way to get bouncing bulbs of Vallota, and of *Sprikelia* or *Amaryllis formosissima*, in the shortest time from the smallest fry of offset bulbs. The Vallota blooms from June to October—that is, some of the bulbs will flower in June, some in July, and some in August and September.—(*Cottage Gardener.*)

COLEUS VERSCHAFFELTII.—That this is a first-rate plant of its kind I think all will admit who have seen it grown; and that it will prove an effective exhibition plant during the coming season I am sure; yet some exhibitors hesitate about growing it, because they say that "it will not tell; that it is a plant as easily propagated as a verbena, and as easily grown as a cabbage." Now, I think this is to be regretted, inasmuch as it is a fine-looking dark-leaved plant. The groups one sees exhibited have too many green things among them; beautiful and decorative as they are, still there is a deadness and want of brilliancy about them. At our shows here in Manchester the most beautiful leaved plant in cultivation is seldom exhibited on account of its being common. I allude to *Cissus discolor*; a good plant of this and the above would I am sure vastly improve collections of fine-foliaged plants. One purpose flower-shows serve is to please those who frequent them; and I venture to say that eight out of ten persons who visit exhibitions would prefer seeing a good plant of *Cissus discolor* or *Coleus Verschaffeltii*, though not worth 1*l.*, to even the stately *Theophrasta imperialis*, although the latter might be worth 20*l.* I am not complaining of exhibitors not growing these things; the remedy lies in another direction, and I think it possible that these deservedly popular collections may be much improved by the introduction of a few showy plants such as those just named.—(*Gard. Chron.*)

CANNAS AND CALADIUMS.—Of the ornamental-leaved plants now coming into use, in flower gardening arrangements, as supplementary to beds of flowers, and imparting a varied and somewhat tropical aspect to the situations in which they are introduced, the best of those which have as yet been tried in this country appear to be found amongst the cannas and

caladiums. The most worthy among the former prove to be *C. Annæi*, *C. gigantea*, and *C. zebrina*. The best of the latter by far for this object, and the best planted near water, is *C. esculentum*. Such is the experience of Mr. Fleming, of Clieveden, who has also pointed out that the most suitable places for the introduction of plants of this character are undulatory surfaces of the pleasure ground, or the neighborhood of water or amongst miscellaneous beds of American plants, rather than in geometrical flower gardens. The beds for these foliage plants should be of some simple form, so as to produce a definite mass, the soil should be rich, to encourage free development, and the beds should be entirely occupied by foliage plants, and not surrounded by flowers.

Both the caladium and the cannas are easily kept during winter in any out of the way dryish place, not subject to frost, and are prepared by being started in gentle heat in spring. The cannas are found very useful as indoor decoration plants for a while before being taken for bedding out. Here is another good hint from Mr. Fleming's papers on this subject, recently printed in the *Florist*. The better sorts of rhododendron being generally grown with plenty of "breathing room," a few of the Variegated Negundo, and of the Red Virginian Maple, introduced into the spaces between, produce a capital effect, inasmuch as they are found to add much to the interest of the rhododendron beds after the flowers of the latter are past, and their own particular features are well brought out by the abundant full green of the rhododendrons.—(*Gard. Chron.*)

SIKKIM AND BHOTAN RHODODENDRONS UNDER GLASS.—When the main range of hothouses was erected here, I had a space left amongst the shade and offices on the back wall for a house to be roofed with glass, for retarding or keeping plants longer in flower than they otherwise would be doing in the summer months. This house or shed is about 76 feet in length, 12 feet in breadth, and about 18 feet in height, and is not heated. I find that the Sikkim and Bhotan rhododendrons are quite at home in it, although they seldom get a glimpse of sun heat. In the beginning of April several of the Bhotan seedling rhododendrons showed flower buds, and I then introduced them into a plant house, where they flowered beautifully; one variety having white flowers with a yellowish tint at the bottom. The blooms individually were as large as those of *Edgworthi* and as sweet scented. *Nutalli* has also flowered very finely. Unfortunately the greater part of the Bhotan seedlings came here unnamed. All the Sikkim varieties that I have are named. *Dalhousianum* flowers freely with me every year, as do also *Edgworthi*, *Maddeni*, and *virgatum*. Those that have not yet flowered are *Wightii*, *fulgens*, *Campylo carpum*, *Hodgsoni*, *Campbelli*, *Thomsoni*, *Aucklandi*, *argenteum*, and *Falconeri*. The plants are mostly small, and none of them are grafted; they stood in the back house just mentioned in the severe winter of 1861, and were not in the least injured. The only extra attention paid to their culture is in the growing time, when they are kept well watered at the root and syringed overhead.—(*Gard. Chron.*)

FUCHSIA.—Probably there is no popular flower so ill represented in our public exhibitions as the *Fuchsia*, notwithstanding that it is naturally a plant of extreme elegance and beauty, and a great favorite with all amongst cultivators of every class. What we see exhibited in the majority of cases, consist of long straggling gawky bushes, half trees, mis-shapen, and lop-sided, with a very unequal distribution of flowers, the latter, especially when at all abundant, being altogether deficient in size and quality. As usually produced fuchsias are a blemish rather than otherwise in our exhibitions, and a never failing source of trouble and annoyance to judges as well as to exhibitors, as witness the discussion on the subject which took place during the past year. We now and then, indeed, hear of a few well managed plants appearing at some country show, but such cases are rare; and certainly the metropolis has hitherto had nothing to boast of in this respect. We trust, however, the case is not hopeless.

The mistake which is made consists in showing old plants instead of young ones. *Fuchsias* six feet high, if well managed, may be all very well—a few of them—in a home conservatory, but brought out to an exhibition and staged half a dozen together to form a “collection,” they are anything but calculated to excite admiration, and the greater the number of such collections brought together in competition, the further removed from admiration are the feelings they give rise to. When there is added to this large unwieldy size, as often happens, a total want of symmetry or proportion in the plants, the case is so much the worse; for when wanting in symmetry, whether it be a large specimen or a small one, a *fuchsia* is wanting in one of its greatest beauties. In a plant so easily managed as this is, the exhibition of specimens which have not this quality of symmetry is moreover anything but creditable to the professional skill of the exhibitor. Even when well cultivated and not objectionable otherwise, the grenadier specimens we have been referring to are so ill-adapted for removal from place to place, that the sooner they are banished from flower shows the better. No doubt it is this growing and too common practice of exhibiting *fuchsia* trees instead of dwarf neat well-grown bushes, which keeps away from our shows the many interesting novelties year after year produced, until their novelty has passed away, and with it half their charm.

Except when admissible as single specimens, or for some other special reason, no *fuchsia* should be tolerated at a flower show after it is a year old. In other words, exhibition plants should always be grown from cuttings of the current year. It is quite within the bounds of possibility to produce from such plants handsome and thoroughly furnished specimens which would put to shame the majority of the plants which one generally meets with. Those who cannot do it may depend on it they have a lesson still to learn. There is even now time, though the season is far advanced, to produce good flowering plants by the late autumn months; but for our summer shows it would of course be necessary to commence some time earlier in the year.

Let us see what would be some of the advantages of following this plan, beyond the by no means inconsiderable ones of furnishing far handsomer

subjects of exhibition, and avoiding most of the difficulties of transit from the garden to the show-ground. First, then, the flowers would be infinitely superior in quality. Every cultivator must know that he would obtain much finer blossoms from a young freely-grown plant than he could get out of a woody stem, three, or four, or five years old, and it is the quality of the individual flowers, their size and substance, and the bright flush of color incidental to youthful vigor, which makes all the difference between a first-class and an inferior specimen. Second: the new and superior varieties would have an earlier opportunity of appearing in public. Even the novelties of the current year, if "let out" in good time, and in a satisfactory state as to health and strength, might many of them make their *début* in the course of the season; but varieties of the previous year would have no obstacle whatever but want of merit, to prevent them from winning public approval. Third: the number of exhibitors, and consequently of persons taking interest in the maintenance of exhibitions, would probably be increased, for but little accommodation would be required to grow the plants, and little difficulty would be experienced in transporting and staging them.

We repeat then, that no fuchsia plant should be tolerated at a flower show after it is a year old, except it be admissible as a specialty, or as a single specimen of high cultivation. For the ordinary purposes of home decoration too, young plants like those referred to are far superior to older ones; though a few symmetrically grown pyramids, and here and there a well balanced standard, may also be found useful, especially when large conservatories have to be kept furnished with flowers.

If the managers of exhibitions and the framers of prize schedules, both metropolitan and provincial, would keep this desirable object, namely, the reformation of Exhibition Fuchsias, in view, and would uniformly work together to effect it, the reform would soon be accomplished; for if the awarding of prizes to the ill-conditioned samples now so often produced were rendered impossible by the conditions of the prize list, they would no longer continue to offend the public eye, but would be consigned to the rubbish heap, and their place supplied by others from which the cultivator might, with ordinary skill, hope to derive some credit. The classes we suggest for general adoption are these:—

Groups of 6, 9, or 12 varieties, from cuttings of the current year, in 8 or 10-inch pots.

Groups of 3 standard plants, the stems not less than 2 feet high.

Single specimens of standard plants, with stems 2 to 3 feet high.

Single specimens of pyramidal plants, 4 to 6 feet high, and not less than 3 feet in diameter at the pot.—(*Gard. Chron.*)

SOIL FOR AMERICAN PLANTS.—Many years ago a writer on what is called practical gardening addressed himself to the subject of American plants, in doing which he undertook to inform his readers how **PEAT** could be cheaply formed artificially. He expatiated on the beauty of such plants, the wonderful improvement made in their flowers, and the ease with which anybody could grow them who had access to good peat. But as many per-

sons are unable to procure the article, he ventured to enlighten them on the art of making it for themselves. Take, he said, leaves, the decaying refuse at the bottom of a woodstack, or of ditches and hedgerows, old tan, any garden rubbish; lay it in a heap to undergo further decomposition; after a time work it well with sand and loam, and then you have a mixture as good as peat from Bagshot or Wimbledon or Woking.

With these recommendations let us request our readers to contrast the statements in a leading article of last week's *Gardeners' Chronicle*, (p. 307,) full of the wise counsels of long experience and sound scientific knowledge. Speaking of such a compost as that just described, the writer tells us that he should as soon think of potting plants in arsenic. And he is undoubtedly right. Anybody, in turning over such a heap after a few weeks of mild damp weather, will see here and there tiny streaks resembling bits of cotton wool, or films of cobweb. What are they but the insidious enemy from which death or incurable disease is about to spring? Every one of those tender threads carries mischief, and is a breeder of destruction among the crops to which it is applied. Even if the dangerous cobweb is not visible be sure it is there, only in a form too fine for human vision. You will know it by the fatal consequences it entails.

Some twenty years ago a zealous amateur, whose ambition soared higher than his purse, unluckily, for cheapness sake, took to growing rhododendrons in the mischievous material described by "M. J. B." He obtained one spring some nice young plants from several nurseries, treated them with the greatest care, and was delighted at their healthy growth. But in the second spring something was the matter with his bushes. They flowered well, but made weak after-shoots; very few blossom-buds formed; by degrees a leaf or two here and there turned yellow and withered; and by the second autumn the plants were for the most part out of health. In the succeeding spring matters were worse; mischief made progress but growth not; small twigs now shrivelled, a branch or two here and there died and turned red; by another spring the case was hopeless. Upon taking the plants up it was found that the roots were dead at the point, and had made no growth; when broken they were brown, and the smallest possible white specks were found on the broken surface. This was an expensive experiment, and would have been still more unlucky had not our amateur convinced himself that he could not grow American plants in his land, and so discontinued his attempts.

There are only two ways in which leaves, bits of stick or rotten wood, twigs and similar refuse can be safely used. One way is to leave them in a heap till they are thoroughly rotted down, then to sift them through a fine sieve, rejecting the undecayed fragments, and again rotting down the siftings. The other is to char them; we do not mean to burn them; but to reduce them by heat and the exclusion of air to the state of charcoal dust: a process by no means so easy as may be supposed, but to be carried out by any experienced gardener after a few failures, which are sure to occur at first. And this is, in our opinion, by far the better method of the two; it is speedy, at once effectual, and destroys the eggs of every sort of insect.

The former, on the other hand, is very slow, often the reverse of effectual, as we all know is more likely to invite the deposit of eggs than to destroy them, and does not possess one single advantage over charring except that any booby can do it.—(*Gard. Chron.*)

Gossip of the Month.

SIMPLE PREVENTIVE FROM THE RAVAGES OF MICE.—Our correspondent, Mr. Geo. Jaques, thus alludes to the destruction of trees the past winter by the mice, and a simple means of preventing their ravages:—

"Immense damage has been done to the apple-orchards of this county, during the past winter, by mice. This destruction of property is the more to be deplored, since the preventive is so simple and sure. For years the mice have not injured my own trees in the least. My method of defence against them, I regard as infallibly efficacious. Early in November I hoe or spade up around each tree *a cone of earth*, covering the collar of the tree five or ten inches deep, so that there can be *no cavity* under the snow-crust *close to the trunk*. Hence, it is impossible for mice to approach that particular point upon the tree where they perpetrate their mischief. *Never* in one single instance has this preventive disappointed me, and I have practiced it over ten years.—Truly yours, GEO. JAUQUES, *Worcester, May 15, '92.*"

Societies.

WORCESTER COUNTY HORTICULTURAL.

We continue our notice of the proceedings of this association, which contain more reliable and valuable information than is generally comprised in similar reports. The discussion respecting apples is especially interesting, and it is with much satisfaction that we find the Duchesse d'Oldenburg, a fine early apple, commended by Mr. Colton, and recommended by the society as being worthy of cultivation.

The weekly meetings of the society have been well attended, and the display of plants and flowers very fine. We have only room for a condensed statement of the discussions, which were, in substance, as follows:

APPLES.

DISCUSSION.—Trustee J. D. Wheeler of Grafton, in the chair. S. H. Colton, from the committee to report a list of apples suitable for cultivation in Worcester county, submitted the following result of their deliberations: Duchesse d'Oldenburg, Bough, Williams's, Porter, Gravenstein, Mother, Holden Pippen, Hubbardston Nonsuch, Tolman Sweeting, R. I. Greening, Baldwin, Roxbury Russet.

The committee remarked that, "from so many varieties of great excellence as we have among us, they find it very difficult to select the small number (12) called for; and had it been desired to propose a much larger list, it would have been an easier task. The list offered embraces a suitable proportion of apples, ripening in succession from August to May, and includes a choice variety well suited to this locality."

On motion of J. F. Allen, Esq., it was voted to take up the list and act upon the several varieties *seriatim*.

1. *Duchesse d'Oldenburg*. Mr. Colton, of the committee, characterized this apple as similar to the "River," or what is sometimes called the "August." It is an enormous bearer, and is desirable in every way. It is especially valuable for cooking. In reply to an inquiry what he thought of the Early Harvest, compared with the *Duchesse*, Mr. Colton remarked that the Early Harvest does not bear well—it is rather run out. On the other hand, Mr. Edward Earle said that he got very good crops from the Early Harvest. S. S. Foster thought it a desirable variety with clay subsoil and high culture. Recurring to the River apple, O. B. Hadwen said that it was injuriously affected by black spots. Gov. Lincoln has three trees. He has had no success with them for the past three years. The fruit has black spots and cracks badly. The soil is underdrained. S. H. Colton has grafted the *Duchesse d'Oldenburg* upon other stocks. It is the largest apple for one so early—that he knows. It is full as large as the "River." *Duchesse d'Oldenburg* was unanimously adopted.

2. *Bough*. Mr. H. R. Keith knows of a tree which grows in a pasture, receiving no care, and yet yields as largely as others upon the same place that are thoroughly cultivated. It bears excellent fruit. Edward Earle esteemed it a splendid apple. Adopted.

3. 'Williams'. On motion of S. S. Foster, adopted, *nem. con.*

4. *Porter*. On motion of J. F. Allen, adopted unanimously.

5. *Gravenstein*. Mr. Keith inquired at what period it ripened. S. H. Colton replied that it was anywhere from the 1st to the 15th of September. Adopted.

6. *Mother*. Edward Earle raises them. Thinks that they decay if not picked seasonably. O. B. Hadwen—When perfect it is a fine fruit. But it is liable to perforation by an insect. Although upon the committee, he should not of himself have recommended the *Mother*. J. F. Allen thinks it very desirable. S. S. Foster—Picks them in November, and they keep until January. It is an excellent fruit. When picked at the right time, it is better in December than in November. Adopted.

7. *Holden Pippin*. S. H. Colton—It is shaped like the *Porter*. It does well in the vicinity of Worcester. H. R. Keith—It does poorly in Grafton; would not call it of the 1st or 2d, and scarcely of the 3d quality. It is an ugly-growing tree, having high limbs and a thick head. S. S. Foster could not think the tree described by Mr. Keith could be the *Holden Pippin*. In his neighborhood it grows very well with a fair, spreading head. O. B. Hadwen—It was discussed in committee as a very profitable fruit for mar-

ket. It grows, as Mr. Keith says, straight up in the air, and gets bushy. In reply to an inquiry, would he not prefer the *Lyscom*? Mr. H. said no. The Holden Pippen seems to come when there is no other to fill the gap. Mr. J. F. Allen moved to substitute the *Lyscom*. The motion was lost. S. S. Foster suggested that nothing but Gilliflower would take the place of it. It ripens after the Porter, and, as observed by Mr. Hadwen, supplies a void that would otherwise be hard to fill. Adopted.

8. Hubbardston Nonsuch. Adopted, without debate.

9. Tolman Sweeting. S. H. Colton characterized it as the best keeper for a sweet apple, within his knowledge. Edward Earle considered it better than the Pound Sweeting. Adopted.

10. R. I. Greening. Mr. Edwin Draper thought that we had better raise the Western Greening. He did not believe (and in this opinion he was emphatically sustained by Edward Earle and the chair), that the R. I. Greening could be successfully grown this side of Providence Plantations. *Per contra*,—O. B. Hadwen has seen as fine specimens upon trees of Mr. John C. Ripley as could be found anywhere. S. H. Colton said that the true R. I. Greening is of a bright straw color, shaded with green. It is also quite flat, with a disproportionate circumference. He had no opinion of western apples. Mr. H. Keith—If he had ten apples, would want nine of them to be R. I. Greenings. Gov. Lincoln had seen the R. I. Greening of excellent quality, in the garden of Col. G. W. Richardson. As described by Mr. Colton, they are of a straw, or golden color, upon a green ground. After a slight additional discussion, the R. I. Greening was adopted.

11. Baldwin. Adopted by acclamation.

12. Roxbury Russet. Adopted *nem. con.*

And the list was completed.

Mr. Colton also submitted the subjoined supplementary list of 12 sorts, recommended to those desirous of an additional variety:—

1. Sopsavine; 2. Red Astrachan; 3. Golden Sweeting; 4. Fameuse; 5. *Lyscom*; 6. Cogswell; 7. Peck's Pleasant; 8. Ladies' Sweeting; 9. Nonsuch; 10. Yellow Bellflower, on warm, rich soil; 11. Hunt's Russet; 12. Golden Russet.

Mr. Keith moved the adoption of this list. Gov. Lincoln would like first to know what was intended by the adoption of the list. It must not be forgotten that some responsibility was attached to the recommendation of such men as Messrs. Colton, Hadwen, and others around him. He thought it better to take less decisive action, and therefore would move to amend the motion of Mr. Keith to the simple effect that the society propose the "supplementary list" as a list of apples worthy of cultivation. Mr. Keith accepted the amendment, whereupon the motion was adopted.

NOTE.—In the last report, in which the 12 best varieties of pears for domestic use were discussed, Mr. Edwin Draper was made to say that the Flemish Beauty rotted at the core. This, he informs us, is a mistake. He did not mean to be so understood. What he said was that his pears of this variety gave him some trouble by being blown from the trees, often

being cracked by the fall, and sometimes cracked on the tree. Still he would recommend the Flemish Beauty as worthy of a place among the twelve recommended by the committee.

GRAPES.

DISCUSSION.—V. P. George Jaques in the chair. Dr. R. Woodward desired to state, as a member of the late committee on apples, that he was unable to meet with the committee but once. At that time he expressed his non-concurrence in the conclusion to which his colleagues appeared to come. In justice to himself, as he dissented from their decision, he desired to present a list which he should have offered as a minority report, had he been present at the last meeting, viz:—River, Williams's, Pomme Water, Gravenstein, Porter, R. I. Greening, Yellow Bellflower, Baldwin, Herefordshire Pearmain, Ladies' Sweeting, Roxbury Russet, Northern Spy.

The committee on grapes, through Dea. Butman, submitted the subjoined report: The committee appointed at our last weekly meeting, to recommend a list of desirable varieties of native grapes for cultivation in our climate, have attended to that duty, and respectfully report that they selected the following varieties as, in their opinion, worthy of general cultivation; being hardy, and ripening in succession from about September 1st to the 1st of October: 1. Hartford Prolific, Diana, Concord, and Delaware. All of which is submitted. B. Butman, per order of committee. Upon motion, the report was accepted. On motion of Dr. Woodward, it was voted to discuss the list separately.

Hartford Prolific. Dr. Woodward would like to know in reference to this and all other grapes, their period of comparative maturity. Does the Hartford Prolific ripen as early as the Isabella? Edwin Draper has raised the H. P. for two years. Esteems the fruit as good as the Concord. One great drawback is its falling off. It ripens invariably as early as the 15th of September. Dea. Butnam said that the committee headed the list with the H. P. on account of its hardiness, great yield, and early ripening. It wants to be picked with care. He esteemed both Concord and Diana superior to the Isabella, with which comparison had been suggested. In fact, he would raise the Hartford Prolific, Diana, and Concord, in any small garden. The chair has not grown them, but has seen Mr. Grout's. It ripens early, but drops. He does not think its flavor equal to that of the Concord, which he considers its superior in every way. This tendency to drop off is a serious objection, for with it you cannot get a handsome cluster.

The question being taken, Hartford Prolific was adopted.

Diana. James F. Allen thinks it so tender as to require covering in winter. The Concord does not need to be covered. Dea. Butman said that the Diana wants a warm exposure and high cultivation. He never had so good a crop of grapes as last autumn. His vines are laid down and covered with pine boughs. He has not yet removed the covering. Edwin Draper said that he had just uncovered his vines. The chairman has raised Diana and Isabella side by side; can see no difference between them in point of hardiness, but they are not to be compared as to quality; thinks that we must adopt the method of culture in vineyards, if we would

raise grapes, i. e. train them to stakes three or four feet high, or else horizontally upon a trellis, which would be the better way. Wm. T. Merrifield thought that a solid wall would be preferable to stakes or an open trellis. The wall emits warmth. All our grapes require shelter and warmth. The Black Hamburg has been raised in the open air against high walls. The chair said that one extraordinary fact might be stated:—On this side of California no European grapes can be raised, while there is scarcely a limit to their production in California. Dea. Butman considered the Diana good enough. It is decidedly our best native grape. Wm. T. Merrifield remarked upon one great difficulty in grape culture. The wood is not ripened enough. You cannot have good grapes without sound wood.

A vote being taken, the Diana was unanimously adopted.

Concord. Dr. Woodward wished to know if it always ripens? Dea. Butman and Edwin Draper could ripen it. The chair would prefer it to any of the new kinds. Dr. Woodward—The Isabella will ripen unfailingly in Northampton, when it scarcely ever does in Worcester. He had succeeded in raising them at the Lunatic Hospital, against a high wall, for several years, but yet they were never so good as at Northampton. He had served as chairman of a committee of this society, upon "all the fruits," in a season of average temperature, when the committee unanimously decided that the Concord grapes at the exhibition were none of them ripe. Other gentlemen expressed their opinions very briefly, mainly in favor of the Concord, when, upon taking the question, the Concord was adopted.

Delaware. The chair does not believe that it can be raised in the open air of Worcester. S. H. Colton has had it for seven or eight years and is also doubtful of the possibility of raising it out of doors in this locality. Alex. Marsh said that Mr. Moore of Charlton considers it the best grape that he has. The chair said that, if he was going to raise them, he should train them close to a wall, without a trellis. In 1857, he raised five bushels of grapes. Dr. Woodward has seen Diana and Rebecca ripen upon a board fence that had been covered with coal tar. To an inquiry about the comparative period of ripening of the Delaware and Rebecca, Jas. T. Allen replied that he had ripened Rebecca before the Delaware. The two grapes are pretty much the same size. H. R. Keith said that Mr. Underwood, of Leicester, considered the Rebecca the best of the native grapes. S. S. Foster now moved, and, upon its second by Jona. Grout, it was voted that the Delaware be passed over for future consideration.

STRAWBERRIES.

DISCUSSION.—V. P. J. M. Earle in the chair.

The committee on strawberries, Edward Earle, chairman, reported as follows: The committee appointed last week to report the names of some of the most desirable kinds of strawberries for family use and the market, have attended to their duty and submit the subjoined list: Hovey's Seedling, Jenney's Seedling, Jenny Lind, and Wilson's Albany. They esteem these the most popular and productive varieties under general cultivation.

The Triomphe de Gand, a new variety, where known, is spoken of in the highest terms, and bids fair to stand at the head of the list.

Much is said about high cultivation for the strawberry. It is of great importance, and will generally secure a good crop, even in a rather dry time. But light or poor soil is quite as sure to give an equally good crop, if kept regularly watered from the setting of the fruit until its maturity.

In behalf of the committee,

EDWARD EARLE, Chairman.

The report having been accepted; upon motion, it was voted to discuss the varieties recommended seriatim.

Hovey's Seedling. D. Waldo Lincoln, Esq., supposed that no one would dispute the excellence or productiveness of this variety. J. M. Earle—But it has been bitterly disputed. D. W. Lincoln—Then they cannot have been the genuine Hovey. He was aware that there were spurious ones. J. M. Earle remembered being at Cincinnati, some years since, and finding that Hovey's Seedling brought a higher price than any other. At the period of his return home, through Philadelphia, the Hovey brought double the sum of any other variety. This was about the time of the savage attack upon Hovey's Seedling by Longworth. And yet but a little while after Hovey's Seedling took the one hundred dollar prize at Cincinnati, in spite of the influence of Longworth and also of local partiality. D. W. Lincoln—Take it all in all, it is the best. People may prefer, for eating, some other especial variety, just as they would choose the Bartlett among pears, but Hovey's Seedling stands at the head. It will bear as full crops upon a given piece of land as any other. He has generally planted with a row of trees between the rows of strawberries. He once tried the experiment of planting the pistillates and staminate at least ten rods apart, and yet had a magnificent crop. They were perfectly fecundated. Hovey's Seedling was unanimously adopted.

Jenney's Seedling. Edward Earle—It is about as well known as Hovey. J. M. Earle has seen it sharply criticised. It is a tart berry, although very handsome. O. B. Hadwen has raised it. It is rather acid. Get it thoroughly ripe, pick it a few hours before eating, and it will be satisfactory. He has found it more profitable for the market than Hovey. It is very good for preserves. D. W. Lincoln—It covers the ground perfectly, more than any other kind. It is a handsome fruit, but as acid as Wilson's Albany, and has a flavor that the Wilson has not. W. T. Merrifield—Is it very productive? His own experience was that it yielded poorly. O. B. Hadwen—Raises strawberries for the market. Of course his object is to get large crops. Is perfectly content with Jenney's Seedling in that respect. D. W. Lincoln—It is productive. The flavor of the berries is, however, unequal.

Jenney's Seedling was adopted.

Jenny Lind. The two varieties already adopted are pistillates.

Of course it will be understood that staminate must be planted with them. If the Early Virginia were larger, he would recommend it in preference to any other, but it is small, diminishing especially during the second year. Edward Earle—Has not raised the Jenny Lind, but has heard it well spoken of. O. B. Hadwen—Thinks it is not productive. It is, however, a fine fruit. Wm. T. Merrifield—Has raised them. Ques. by D. W. Lincoln—What did you think of them? Wm. T. Merrifield—I did not get

enough to enable me to form an opinion. A general laugh ensued, when, on motion of D. W. Lincoln, it was voted to pass over Jenny Lind.

Wilson's Albany. Edward Earle has raised them ever since they were introduced into Worcester. Never had like success as with the Wilson. They want to be thoroughly ripe, however; as dark as some cherries—say the Tartarian. S. V. Stone—If a person should take a plate of Wilson's first, and afterwards one of Hovey's, he will scarcely relish the latter. Thinks that the unfavorable opinion of the Wilson strawberry, adopted by so many, is owing to their not eating it ripe. Remembering the usual color of strawberries, they pick the Wilson too early, not waiting its perfect maturity. As to its productiveness, he has a bed 20 feet by 6, from which, last year, he picked 75 boxes. His vines were not winter killed. D. W. Lincoln—Mine were in patches here and there. Jenney's Seedling, in a similar exposure, is green enough. O. B. Hadwen—When it came out, sent to Wilson and procured 1000 plants. It is very productive of fruit. It should be cultivated in hills, as it is apt to push up little crowns around the central or parent vine. There is no mistake about it being profitable. D. W. Lincoln—Customers have requested me not to supply them with the Wilson. O. B. Hadwen—I will confess that it is not to my own taste. But I have raised them three years, and they sell readily. Have grown Scott's Seedling (now generally in demand), and find it more productive even than the Wilson. D. W. Lincoln—Never have seen any strawberry as productive as Scott's Seedling. Wilson's Albany was unanimously adopted.

D. W. Lincoln called attention to the remarks about the *Triomphe de Gand*, made at the meeting of the Fruit Growers' Society of New York, and reported in the *Horticulturist* for March.

[We regret that the society should recommend a fruit because it "sells readily," regardless of its quality. The object of such discussions is to select the good from the bad, and they accomplish but little if they fail to do this.]

BROOKLYN HORTICULTURAL.

The Spring Show of this flourishing Society was held on Wednesday, April 23, and, according to the report, was a very successful affair.

An account of the exhibition has been sent us, but as it only gives the names of the competitors, without the names of the different plants, it would afford but little information to our readers. The most successful exhibitors were Messrs. Menand of Albany, G. Messeberg of Williamsburg, Geo. Howe & Son and I. Buchanan & Son of Astoria. Mr. Menand exhibited some very beautiful specimens.

Our correspondent, Mr. A. Chamberlain, had a fine and large display of his patent moss baskets, containing fruit trees and flowers grown entirely in chemicals. They received a special award.

Mr. J. Cadness of Flushing exhibited a new double petunia, called *Gen. McClellan*, large, and beautiful, to which a special award was made. Messrs. Buchanan also exhibited a new seedling petunia.

Horticultural Operations

FOR JUNE.

FRUIT DEPARTMENT.

May has been unusually dry and warm and the season is nearly as far advanced as any year—at least 10 days in advance of 1861. Fruit and crops of all kinds promise an abundant yield.

GRAPE VINES in the early houses will now be ripening their fruit, and will require an abundance of air, both night and day, in good weather. Discontinue damping the house so frequently, and top the laterals as they proceed too far. Vines in succession houses will now be swelling their fruit rapidly, and the berries should be thinned immediately; shoulder the bunches when large, and pay every attention to the crop. Damp the house morning, noon and night, and keep up a genial moist atmosphere till the berries are well swelled up; top the laterals and tie in young wood for next year. Vines in cold houses will be a little later and will require the same attention as regards moisture, &c. Vines in the open air should have attention; pinch off all superfluous wood and encourage strong growing shoots.

PEACH TREES IN POTS, now well advanced, may be removed to a sheltered situation in the open air. Water liberally till the fruit begins to show signs of ripening, using liquid manure occasionally.

ORCHARD-HOUSES should be looked after; air liberally, and damp the walks; close up early in raw chilly weather. Fumigate for the green fly, and sulphur for the red spider, or give a syringing with whale oil soap.

STRAWBERRIES should have attention; keep new beds clear of weeds and stir the ground often till the runners appear. Old beds should have a thorough watering in dry weather.

SUMMER PRUNING may be commenced now, proceeding according to directions in previous volumes, or according to the advice of Mr. Brehaut in his articles.

MANURE AND MULCH fruit trees bearing heavy crops.

FLOWER DEPARTMENT.

The season for removing plants from the houses is at hand, and the first cloudy weather should be taken advantage of to remove the principal stock, except Camellias and Azaleas, filling their places with Achimenes, Gloxinias, Begonias, &c., &c. The bedding stuff being got into the ground, the winter-flowering stock should occupy attention. Prepare soil for potting in August and September.

PELARGONIUMS will now be in full bloom; shade the house in the middle of the day, and air freely at night, giving plants in bloom plenty of water.

AZALEAS will now require especial attention; prune back ugly shaped plants, and pinch in the young growth as they require it; tie into neat shape and repot all such as require it. Keep the plants in the house, shading them from the hot sun, syringe often and encourage a vigorous growth.

CAMELLIAS should be syringed often, and by the last of the month removed to the open air, in a half shady place.

CHRYSANTHEMUMS should be repotted.

ACHIMENES may be shifted into larger pots.

FUCHSIAS should be encouraged by a liberal shift and good rich soil.

BOUVARDIAS for winter blooming should be repotted.

MONTHLY CARNATIONS should be planted out in a good rich soil where they will make stocky plants for winter flowering.

ROSES may be plunged in tan or decayed leaves, or planted out into the open ground.

GLOXINIAS should be repotted.

BEONIAS should have a shift into larger pots.

CINERARIAS should be pruned in, top dressed, and placed in a half shady place, where they will make good suckers for potting off next month. Sow seeds for early flowering.

CHINESE PRIMROSES should be removed to a cool frame where they will only get the morning sun. Pot off young seedlings and sow for a succession.

CYCLAMENS may be planted out in a half shady border, as we directed in a late number.

HEATHS should be repotted, unless turned out into the open ground.

WINTER FLOWERING STOCK should be headed in, repotted, and plunged out in the open ground.

ACACIAS should be repotted and pruned in.

CHINESE HIBISCUS may be turned out into the open ground.

TUBEROSES should be repotted.

FLOWER GARDEN AND SHRUBBERY.

The lawn will now look in fine order if properly managed; roll often, and mow at least every fortnight; as shrubs go out of bloom cut off the old stems and otherwise prune and put into shape. Rake and stir the ground often, and clean and roll the walks.

CARNATIONS AND PICOTEEs as they advance in growth should be neatly staked.

VERBENAS planted out should have their shoots, as they grow, neatly pegged to the soil.

DAHLIAS should be planted, digging a good hole and filling with very old decayed manure.

GERMAN ASTERS may be transplanted now.

BEDDING PLANTS of all kinds, not yet planted, should be got into the ground immediately.

DAISIES, when done flowering, should be divided and reset.

NEAPOLITAN VIOLETS should be divided and planted out for a stock for next winter.

ROSES should have attention; look out for the rose slug in season and syringe with whale oil soap made by mixing 7 gallons of water with one pound of soap.

TRITOMAS should be planted out in a good rich border.

THE RHODODENDRON AND AZALEA.

THE glory of these magnificent shrubs is waning, but the remembrance of their splendor will never be forgotten. Even the rose, now rich in the profusion of its lovely blossoms, loses much of its attractiveness aside of the beautiful kalmias, just now in the height of their exquisite bloom. No wonder the English prize so much the American Garden, which they make the prominent feature of every princely residence. We can well overlook some of the little prejudices of our transatlantic friends, for their hearty admiration of our almost unknown and neglected native shrubs, taking them under their especial care, making them the prominent objects in their gardens, and showing them to the gay Londoners every year in such dense masses as to bewilder them with their magnificence and beauty. Every spring these shrubs are transplanted from the neighborhood of Woking, where they are grown in great quantities, to the Regent's Park, and Royal Horticultural Society's Garden, where they are arranged in neat beds, and protected with an awning, retaining their beauty for weeks, and attracting immense crowds of admiring visitors. After their bloom is over they are removed to the grounds from whence they were taken, receiving no injury, so easy are they to transplant at all seasons of the year.

Yet these shrubs, which afford so much pleasure to the English cultivators and lovers of flowers, are descended from our native rhododendrons and azaleas, by the aid and skill of intelligent gardeners, who have devoted years to the production of choice varieties. The American rhododendrons are of course entirely hardy, while the Asiatic species are hopelessly tender. By the union of the two, through hybridization, the rich colors of the Indian sorts have been added to the less showy tints of the American, while the tender character of the former has been wholly worked out. How much

do we owe to the process of hybridization for a greater part of our finest flowering shrubs and plants.

Is it possible that plants which have become so prominent abroad, that have been yearly exhibited, universally planted, and everywhere admired, should be almost unknown to American cultivators? Such, however, is the fact, we must confess; and a single rhododendron, with a few blooms upon it, is looked upon as a wonder, its origin unknown, and its name unheard of; so rare is it in our gardens that it is generally supposed to be a greenhouse plant. Even the azaleas, though similar in form to our native species, are so different in color that they are not recognized as the same plants; and the kalmia, which covers the hills of New Hampshire with its verdure in winter, and spangles them with blossoms in June, is unknown to many cultivators. So slowly has the taste for plants advanced, or rather we should say so little has the opportunity been improved for obtaining information upon gardening, that these and other beautiful shrubs and flowers are almost unknown.

The English cultivators appear to have been first to appreciate the rhododendrons, and for many years they have been made specialties by a few nurserymen in the neighborhood of London, at Bagshot, where the soil is a deep black peat, especially favorable to their growth. Here they have flowered in more than native luxuriance; they are raised by millions, which shows the extent to which they are planted throughout Great Britain. The French and Belgians were later in their attention to its cultivation, though now having many superb collections. The Asiatic species, being more brilliant in their color than the American sorts, for a time occupied attention, but they were unsuited to the climate, and it was not till the hybridization of our native *Catawbiense* and the former began, that the rhododendron really assumed the importance it has since attained. Early frosts cut off the blossoms, and otherwise injured the plants except in favored localities, but these being ascertained, the skill of the cultivator has overcome these difficulties, and the hardy rhododendrons have become abundant and wonderfully beautiful. What the result will be with the aid of the Himalayan species remains

to be seen, but there is no doubt the enormous size of the *Nuttallii*, as well as its delightful odor, will in time be attained. The Belgians have, within a few years, accomplished a great deal. Messrs. Byls, amateur cultivators, devoted some years to the production of rhododendrons, and raised some very distinct and superb seedlings; others are no less enthusiastic, and a few years will undoubtedly witness as remarkable improvement in this as in other flowers.

Among all shrubs the rhododendron must stand pre-eminent. Rich in the deep verdure of its broad evergreen foliage, and profuse in the display of its immense clusters of large blossoms, for decorative effect, as well as individual beauty, it must take the highest rank. In masses or groups, nothing can equal it. Planted on slightly sloping banks, as it naturally grows, and as it is arranged in the American grounds of Britain, intermixed with azaleas and kalmias, the effect when in full flower is indescribably magnificent. Such has been our own collection, which, though only moderately extensive, embraces some thousands of plants of all sizes. The light and dark colored rhododendrons, the golden, rosy-hued, orange, and flame colored azaleas, and the pinky kalmias, formed a combination of tints not known in any other class of shrubs. We have fully realized the great beauty of the American Garden, the single feature which gives prominence to Highclere, Cliveden, and other ducal places of Great Britain.

These shrubs,—as hardy as an oak,—should be universally cultivated; they should be introduced into every garden; and, where space admits, in the same way as in Great Britain, in masses, where they can have what suits them best,—just the right soil, a natural peat,—though they will grow in anything but a stiff clay. They are slow to propagate, but the easiest and most certain to transplant, removing with a ball of earth, which adheres to their small fibres. They may be removed any time from April to October, without injury to their blooming. All they require is a good covering of leaves, or *very old* manure, in the autumn, which may be dug in around the plants in spring or allowed to decay upon the surface. In very windy exposed places a few pine boughs stuck in around the plants, to keep off the hot sun and pierce-

ing winds, will do no harm, though our own have had no protection of the kind.

The varieties of the rhododendron and azalea are now quite numerous, and contain many distinct and beautiful colors. Formerly the rhododendrons were too much alike, the lilac and purple shades prevailing; but, with judicious hybridization, the deep colors are now abundant and fine. All are not, however, sufficiently hardy to stand our climate; such as have too much of the Asiatic breed in them, losing their leaves and often the young shoots; repeated crossings with our native Catawbiense and its hybrids are necessary to produce a hardier race, and every year is adding them to our collection. There is, we think, just now, a deficiency in the whites and light colored sorts, which are indispensable in arranging a plantation for ornamental effect. The Belgians have raised some very remarkable spotted and parti-colored seedlings, which are hardy in that climate, though how they will stand here remains to be seen; another year will test the hardness of several we have added to our collection. The azaleas have more variety than the rhododendrons, and some of the orange and flame-colored varieties are brilliant beyond description. They also vary in their period of flowering, some being early and others late, which prolongs the season to six weeks or more. Recently the Belgians have produced several double azaleas, which are very beautiful, but the plants are yet too small to ascertain their value in comparison with the single sorts. If as free bloomers they cannot fail to be grand additions to every collection of American plants.

The rhododendron and azalea have been too long neglected. Years gone by we urged their more extensive culture, and stated that we should omit no opportunity to remind lovers of beautiful shrubs of their great claims upon their attention. We believe we have kept our promise, reminding them every year of their individual and collective beauty, increasing with the growth of the plants, until each one forms a mass of verdure and bloom unsurpassed by any other hardy shrub. Some of our older specimens, six or eight feet high, and quite as broad, displaying hundreds of clusters of blossoms,

have been truly magnificent, and grouped as they are with azaleas, kalmias, ledums, andromedas, and other allied plants, produce an effect which the pen fails to describe.

Need we say more in favor of these superb plants, and will our amateurs neglect them longer? They are the progeny of our own native species, and need no unnecessary labor to display their beauty. One simple want they require, to have them in perfection, and that is a peaty soil, which is easily supplied, and which they will repay, even if it were ten times more difficult to be had. Decayed leaves and sand, or boggy earth, are abundant, and a mixture of these with any light garden soil, will supply a material in which they will thrive successfully.

HALF HOURS WITH OLD AUTHORS.

BY WILSON FLAGG.

AN INTRODUCTION TO THE KNOWLEDGE AND PRACTICE OF GARDENING. By Charles Marshall, Vicar of Brixworth, Northampton Shire. London, 1790.

This work, written by a Clergyman of the Church of England, is a comprehensive manual of the gardening art, commencing, as books of that age usually do, with an introduction in praise of gardening. This is followed by a botanical essay concerning the laws of vegetation. The author afterwards treats "Of the Formation of a Garden;" "Of the Cultivation of a Garden;" "Of Propagation;" "Of a Nursery;" and of all the various operations in horticulture. He treats also "Of Forest Trees;" and "Of Rural Gardening," by which he means those extensive operations which are now termed landscape gardening. In the present account of this work I shall confine myself chiefly to the chapters on "The Formation of a Garden," and "Of Rural Gardening."

The garden he treats of, is a place where vegetables, fruits, and flowers are cultivated under the same inclosure. Considering the profit and pleasure to be reaped from a good

garden, it is certainly an object of some consequence to the comfort of human life. He therefore advises those who have a garden to form, not to be niggardly, either in allotting ground for it, or in expense and trouble to lay it out in the best manner. The agreeable work of making a new garden can happen to few; and when it does, soil, situation, and space, all favorable, are happy circumstances not always at command. To help towards determining the quantity of ground it may be prudent to cultivate as a garden, a general idea may be given by observing that an acre, with wall trees, hotbeds, pots, &c., will furnish ample employment for one man, who at some busy times will need assistance. The size of the garden must be proportioned to the house, supposing the house to be proportioned to the family and their circumstances. He thinks, however, it is better to have too much ground allotted than too little; for there is nothing incongruous in a large garden attached to a small house. He gives a curious rule, which may be of some practical utility, with regard to land for culinary vegetables. He remarks, to give some rule for the quantity of ground to be laid out, a family of four persons, exclusive of servants, may have a rood of good working ground, and for every additional head one quarter of a rood extra.

Let the garden, at any rate, be rather extensive in proportion to the family; for then a useful sprinkling of fruit trees can be planted in it, which may be expected to do well under the common culture of the ground about them; also, a good portion may be allowed for the strawberry, an agreeable fruit in all its varieties. Asparagus alone requires considerable ground, and still more for a good succession of beans and peas. Hotbeds, which are indispensable, require also a great deal of room.

The situation of a garden should always be dry, but he recommends that it should be low rather than high, if compatible with dryness. He recommends high solid fences as protection from the cold winds, at least ten feet high, and the garden is much improved by subdivision fences. Trees are of but little advantage for protection unless there be a solid plantation of them, instead of a row. The author should

have added that underwood is very needful where a narrow strip of wood is used for this purpose. Spruce firs have been used as close shorn hedges, which are proper to plant for a screen, in a single row, but the best evergreens for this purpose are the evergreen oak and the *cork tree*. Trees can be used extensively as screens only where there is ample space, as they are apt to shade a small lot of ground too much.

If there be any slope in the land, it should be southward; a point either to the east or west being of little importance; but a northern slope should be avoided, because it is backward in its crops, and does not stand the winter so well. A garden with a northern aspect has, however, its advantages, being cooler for some summer productions, as strawberries, cauliflowers, &c., and it is desirable, therefore, to have some ground of this character, especially as succession ground. If the soil of a garden is stiff, it is advisable to make one spot warm and light, by mixing with it a good proportion of sand, for early vegetables; as in a good sandy soil plants will germinate much earlier in spring than in a stiff dry soil.

The soil that suits general cultivation best is a loam, rather red than black, though there are good soils of various colors. The worst soil is a heavy clay and the next a light sand. If a soil is too strong, too poor or too light, it must be carefully improved without delay. Let it first be cleared of all rubbish, and broken to a regular level depth at bottom as well as at top, so as to give full eighteen inches of working mould. This must not be done, however, when it involves the necessity of throwing up bad soil. This bottom levelling is particularly necessary, when there is clay below, as it otherwise holds too much water, which should never stand in any part of a garden. When a piece of ground is cleared of roots, weeds, stones, &c., it would be beneficial to have the whole thrown into two feet wide trenches, and lay thus as long as convenient. The ground cannot be too well prepared; for when it is not broken to the bottom at first, it is seldom practicable to do it afterwards. There is this great advantage in a deep staple, that in the cultivation of it, the bottom may be brought to the top every other year, by double trenching, and being thus renewed it requires less manure.

The aspect of a wall designed for the best fruits should be south, inclining to the east, by which it will catch the sun's rays at its rise, the cold night dews be earlier and more gently dissipated, and the scorching rays of the afternoon's summer sun are sooner off. By having the walls of a garden not directly to the four points, the north wall is greatly advantaged by having more sun. The border next this wall should be very good earth, about two feet deep, rising a little towards the wall. Some fresh maiden soil, not too light, is necessary; and if it is not naturally there, let no trouble be spared to procure it. If manure is necessary, let it rather be that of rotted vegetables, or a small quantity of turf or wood ashes, or still less of soot or salt; for the roots of trees should not meet with much dung, especially of horses. That of other creatures will do if it be well rotted and thoroughly worked into the borders, and as long as possible before the trees are planted. Let the holes be sometime opened beforehand, that they may be sweetened and improved by the exposure.

The borders for peaches cannot be too wide, for in a few years the roots will spread very extensively; and that they may do it without impediment of rubbish in the walks, and without meeting with a bad soil, is of great importance to the health and fruitfulness of the trees. Wall trees should not be older than two years from the grafting or the budding. Trees, if too old, do not bear well the change of soil, and more advantage is lost in this way than gained by the earlier bearing of the trees. But if trained trees are to be transplanted, let the work be done as early as possible, and let the roots be entirely preserved. The author is very full on the subject of trained trees, but as standards or dwarf standards are now preferred, it is needless to quote him any further on this point.

The author next treats of walks, which he says are to be governed by the borders. For the sake of a pleasant sheltered walk, to have the south border narrow may be desirable, but on no account let it be within six feet. Take care *that the walk is not sunk too much*, and that it have a bottom of good earth as deep as where the trees are planted. Let the body of gravel be thin, and then the roots of the trees

will be admitted to run properly under the walk, and find nourishment; where, if they were stopped by rubbish, they would be apt to canker, and irrecoverably disease the tree. The number and breadth of walks must in a measure be determined by the quantity of allotted ground; but it is better that they should be few and wide than many and contracted. If the garden is small, one good walk all round is sufficient; and if long and narrow, the cross walks should not be many. It may be remarked here that the author does not recommend paths for ornaments; this is one of the follies of a later day.

He makes some good observations on varieties of fruit. Nursery men, it is often said, are not to be depended upon; for if they have not the sort you want, they will send you the one they have. [This management is wholly impracticable at the present day when the nursery business is conducted systematically; and every responsible nursery man forwards the article ordered, or none at all.] This may sometimes be the case, as they may think it of little consequence, if you have one that is good. But the case is, there is great confusion in the names of fruit, by accident, ignorance, and carelessness. New titles have been arbitrarily imposed on old fruits that have happened to vary a little, and distinctions made without a difference, of which circumstance Mr. Evelyn complained in his day, saying, "The discriminating the several kinds of fruit, by their characteristical notes, from the leaf, taste, color, and other distinguishing properties, is much wanting." But the ability for this is only attained by long and critical observation.

Disappointment is frequently felt by the purchaser, who, having met with a fruit to his mind, inquires the name and is told a wrong one, and that perhaps of a bad sort; the nurseryman then complying with his order is blamed. A reduction of the number of sorts to those in which there is an evident difference, and more care on the part of those who raise and those who buy trees, and especially the preservation of the true name of each variety is essential to success. The author remarks, however, that the fruit even of the same tree is not always alike, owing to the season; as that growing in a

cold, wet, and shady summer will be inferior to the productions of a fair and sunny one. Very hot and dry weather will make a difference in another way, and the fruit of these two extremes of weather may differ like distinct varieties.

Very little important information is likely to be gathered from these old authors concerning the different branches of horticulture, which is more perfectly understood at the present day than at any former time. But sometimes an important observation, originating with the author, is forgotten, because it was not generally known. Hence there are probably not many persons, even among our practical men, who would not occasionally find instruction in an old book. A distinction made by the author in regard to flowering shrubs is not always kept in mind. He says the method of pruning them is to be determined according to their several modes of bearing, of which then are chiefly to be considered. Some produce their flowers upon the last year's shoots, some on the present year's shoots, and on the ends or the sides of their branches. If a shrub bears on the last year's shoots, it is evident that it must be cut away no more than is necessary to keep it within bounds, open and handsome in shape; in this case it is necessary to cut clean out, or very low, what is to be spared. If a shrub bears on the present year's shoots, the old wood may and must be cut down freely, so however as to leave eyes enough for new shoots to proceed from, to make a sufficient head. If a shrub bears altogether or chiefly at its ends, no shortening must take place; but if some of the branches are too long, they may be either cut out, or quite low, leaving the shorter ones to bear. If the shrub bears along its sides, the shortening is of no consequence and the desired form may be freely provided for at pleasure.

With regard to the time of pruning shrubs, he says the time of flowering must in some measure direct the time of pruning. Shrubs that flower in the winter should be cut in the spring. Those that flower in spring may be pruned immediately after their blow or in summer. Those that flower in summer should be pruned in autumn; and those that flower in autumn should be pruned either soon after flowering or in spring. He gives some particular examples to illus-

trate his general directions in regard to pruning. Roses bear upon shoots of the present year, and upon those formed after midsummer in the past year, but chiefly upon the former. Hence they should be cut down low, leaving only three or four eyes to a shoot. Honeysuckles and sweetbriars flower on shoots of the present year, and should also be pruned close. Lilacs bear their flowers at the ends of shoots of the last year; of course in spring they must not be shortened. If they need much reduction, let them be cut down immediately after their flowers have wilted, and then the shoots that come after will form flower buds before the summer is out, for the next year.

Some of his general observations on "Rural Gardening" (Landscape Gardening) are worthy of attention. He says rural and extensive gardening is naturally connected with a taste for planting forest trees; and an idea of the picturesque should ever accompany the work of planting. Merely for the sake of objects to gratify the eye, planting is very often pursued, and wherever trees can be introduced to improve a view from the house, or accustomed walks, there they ought to be planted. If to planting in clumps, coppices, groves, avenues, and woods, be added levelling of ground, improving of water courses and pastures, making lawns, &c., the expense incurred would be praiseworthy, and answered by pleasures of the sincerest kind.

Yet here some caution is given by the author. "Do nothing too much," is a wise maxim. Building, planting, and gardening, upon a large scale, have been sometimes attended with serious consequences, as when a man's fortune has not been equal to his undertaking. There is a variety of works and decorations in extensive gardening which injudiciously used might cause a wasteful expense. This is an error that ought to be avoided, and most probably would be by those who have been in the habit of studying nature, and of considering art in proper light, as her submissive handmaid.

"Artificial decorations are at this time (1772) *much less made use of than formerly*, and the grandeur of past times in the way of gardening would now be thought trifling and mean." Not only were ease and simplicity sacrificed to vege-

table sculpture; but gardens were formerly loaded with statues.

About the house some shady walks ought always to be provided by planting trees, or, if the space is contracted, shrubs are to be preferred. It too often happens, he remarks, that good old sorts of trees, shrubs and flowers are excluded for new ones; but if the latter are not more elegant and generally pleasing, the practice is surely not a wise one. It is remarkable, I would add in conclusion, how closely the practice of our fathers a century ago resembles our own, in this passion for novelty.

THE PROGRESS OF HORTICULTURE. NO. I.

BY AN AMATEUR.

'Tis greatly wise to talk with our past hours.—YOUNG.

IN examining the early volumes of Hovey's Magazine of Horticulture, the idea was suggested to the writer that it might not be a topic wholly devoid of interest to the members of the Massachusetts Horticultural Society and others, interested in the literature of gardening, should a brief retrospective review of the past quarter of a century be presented, for the consideration and edification of new and young members of the society, while serving in regard to the older members to remind them of many pleasant incidents and delightful scenes now out of mind. With truth it is said, "Man is a being of large discourse, looking before and behind." The old members of the Society, such as have been connected with it from its first organization, and who are thoughtful men, will concur in the sentiment,—That the present, in regard to all material enterprises, is, to a certain degree, what the many contributions of the past have made it. Horticulture, or the divine art of gardening, is not an exception to this rule. It should be borne in mind, however, that change is not necessarily an evidence of progress, though all progress, it will not be denied, indicates change. The instruction of the present, and all advancement in the future, have a vital

connection with the past,—not the “dead past,” as some flippantly say,—but the *living* past, the great vitalizing power of the present, and the only guaranty and promise of growth in time to come. The son who inherits the knowledge, wisdom, and prudence, with the traditions and accumulations of his father, as the latter derived them in part from former generations, together with the additions which his frugal industry and patient labor have added, sets out in life with better prospects, provided he has been rightly disciplined and faithfully trained, than if wholly destitute of such noble ancestral antecedents. It is only in connection with such a view of man’s agency in carrying forward an enlightened civilization, that it is, or can be true, that every generation grows wiser. Of two distinguished and quite aged French botanists, the younger of whom has the honor of first promulgating what is called the Natural System in Botany, it is said, by their biographer, “The life of the younger seemed to be the natural prolongation of that of the elder, so progressively united were they in the work of original investigation, and so completely was the younger master of, and therefore in possession of, what the elder had done.” Such illustrations as these, without multiplying cases, cannot but impress the thoughtful reader of his obligation to the past, for the many, ay, innumerable blessings and immunities of the present, not less than for all his bright hopes in the future, and with all his most joyous anticipations. Let these reflections, and such as these, as will spring up in every contemplative mind, suffice as a fitting introduction to the work which the writer has voluntarily undertaken, not, however, without the approval of the Editor of the Magazine of Horticulture, to whom he first made known his purpose. If the retrospective review now proposed, be faithfully and impartially written,—and the writer is conscious of no bias of mind that can turn him from such a purpose, whatever may be his incapacity in other respects, and no one can know it better than himself,—it will enable the reader to judge intelligibly of the Progress of Horticulture in America, during the last thirty years and more, since the Massachusetts Horticultural Society was organized. There is no other record in the Commonwealth, or

the United States, as the writer is at present informed, that contains so complete a history of the rise and growth of horticulture in this country as Hovey's Magazine.

The first number was issued in January, 1835, and has been regularly published, monthly, down to the present time. The title page of the first volume, as it lies open before the writer, is, "The American Gardeners' Magazine and Register of Useful Discoveries and Improvements in Horticulture and Rural Affairs; Conducted by C. M. Hovey and P. B. Hovey, Jr." It was then published in Boston and has been ever since.

The "Conductors," as they then styled themselves in their introduction to the public, remarked, "Horticulture, of all the sciences which have occupied the attention of man, has held a distinguished rank, affording in its productions the necessities and comforts of life,—cheering the frugal board of the cottager with wholesome vegetables, decorating the tables of the affluent with the delicacies and luxuries of life. It was the first art of man in his primeval state, to till the ground and to gain therefrom nourishment and subsistence, whereby his wants were supplied, thus meeting the desires for social enjoyments and pleasures. It is not confined to any class of men, but is the favored employment of every part of the civilized globe. Its spirit has diffused itself through all grades of society. To the merchant, it is a source of relief from the toils of business in a crowded city; to the man of sedentary habits, it is a source of health invigorating exercise; to the gentleman, a favorite recreation in which his leisure finds delight and gratification."

They continued, "The nature of the Magazine is expressed in the title; it will be the principle purpose of the Conductors to present their readers with original communications on Horticulture, Floriculture, Botany and Rural Affairs;—selections, useful and valuable, from foreign and domestic works, Miscellaneous Notices, &c., designed to promote and disseminate a taste for the art among all classes of society, and to offer such observations as will direct the attention of those who have not impartially considered the subject, to its importance." After elaborating somewhat at length the meth-

ods by which what they promised is to be fulfilled on their part, they concluded as follows :—

“ We have had such assurances from our friends as to leave no doubt that we shall be able to make every succeeding number of increased interest ; and we respectfully invite all who feel the want of a work like this, to encourage us by sending us communications. To the practical gardener the public look for information and instruction, in the minute things which escape or elude general observation, and without which, the successful cultivation of many plants may be considered precarious. We sincerely hope no one will offer as an excuse, of his inability to become a contributor. With regard to ourselves, gardening is a pursuit to which we have ever been zealously devoted, and in which we ever feel a deep interest. We hope that our humble efforts in our new vocation will not be unavailing in disseminating a taste for horticulture ; and if our endeavors receive the approbation of a liberal public, we shall not fail to exert ourselves to merit a continuance of their support.”

What better evidence that the Magazine *has* received the approbation of an appreciative public, then solicited, than the fact that it has continued to demand its regular issue through the twenty-seven years that have elapsed since its publication was commenced by its enterprising proprietors and conductors. They seem like men whose motto has ever been, “ Practice with Science ;” and it is the doctrine contained in this terse phrase that has ever furnished the foundation upon which they have faithfully sought, with their earnest co-laborers, to build or construct the art of economical gardening in the Western world, whether in regard to the poor man’s cottage, or the rich man’s costly suburban residence ; and in so doing, they have clearly earned the distinguished honor,—than which there is none higher,—of being benefactors of mankind.

What is a home in a civilized community without a garden ? Campbell, the author of the *Pleasures of Hope*, wrote,

The world was sad !—the garden was a wild !
And man the hermit sighed—till woman smiled.

Without woman and wedlock a home is hardly conceivable.

With the genial influence of wife and mother, a rural home without a garden would also be inconceivable. Woman's smile had power, and still has power, and ever will have power, to convert sighing, forlorn hermits into genial companions for angels even, not only, but also to change the desert wild into a smiling paradise. The garden has charms, and is the source of innumerable pleasures through every period of life. The infant, when carried into the garden, is so allured and attracted by the bright colors of the flowers, that it is ready to leap from paternal arms to pluck them from their graceful stems. They are among the most harmless and powerful educational toys that can be put into children's hands to amuse and entertain them. Their presentation not unfrequently becomes a cabalism, the occult meaning of which is readily enough interpreted by the interested parties. The youthful and happy maiden delights to entwine them in her golden locks, while regaling herself on their fragrant breath and tracing their mimic beauty with the pencil, which

Nor scorched by suns, nor killed by shade,
Shall blush with less inconstant hue,
Which art at pleasure can renew.

The garden of Eden, as described by Moses, where in innocence and purity dwelt Adam and Eve, furnished the imagery for enriching the grandest epic poem ever written by the uninspired pen of man. "From this," says Phillips, an English writer, "have been copied the plantation, the park, and shrubbery, so justly the pride of the nation and so properly the abode of its beauty. The Greeks devoted their terrestrial groves as well as celestial gardens to the gods; but the Mahometans reserve their flowery lawns and umbrageous bowers for scenes of future bliss to mortal believers. We, however, more prudent, should wish to collect all such blessings which bounteous nature has scattered over the globe, and in this present life form a modern garden, worthy of the Hesperides, and deserving of, though not requiring, a dragon to guard it."

"——— Much I love

To see the fair one bind the straggling pink,
Cheer the sweet rose, the lupin and the stock,
And lend a staff to the still gadding pea.
Ye fair it well becomes you. Better thus

Cheat time away than at the crowded rout,
 Rustling in silk, in a small room close pent,
 And heated e'en to fusion ; made to breathe
 A rank, contagious air, and fret at whist,
 Or sit aside to sneer and whisper scandal."

The beautiful gardens of antiquity were, some of them, made for, and devoted to, the delight and pleasure of woman. Those of Jerusalem have an immortal celebrity in the wonderful Song of Solomon. The gardens of Babylon were among the most remarkable of olden times. The history of them shows that pleasure grounds have existed from the earliest records of civilization. The flourishing of the arts and of gardens has gone hand in hand. The Romans devoted considerable attention to gardens and pleasure grounds, as all the nations of Europe have done. When Addison, the great poet and essayist, was making and beautifying a garden at his rural retreat in Bilton, near Rugby, Pope was engaged in laying out a picturesque plantation at Twickenham. Both, meanwhile, made open war upon the right angles and disfiguring shears of the gardeners of their day, against whom they pointed the keenest shafts of their ridicule. They were seconded by Kent, a painter, architect and landscape planter. He was followed by Wright, Brown, Holland, Repton, and others.

In this work-a-day world, to one whose taste for the beautiful in nature, everywhere displayed, has never been roused from its latent state, nor to the pleasures of a garden, life can be hardly more than a treadmill of toil, anxiety and care. To all such, the green fields, the verdant woods, the flowery meads, with the delightful pleasure gardens, are left

"To waste their sweetness on the desert air,"

almost as if they were not, in regard to such persons. Such, generally have no taste for music, poetry, and painting, and, therefore, are unable to appreciate their merits, which can only be rightly judged of by nature ; for the true artist only expects fame as he is true to her that holds every conceivable style of beauty in her wonderful domain.

Well and most truthfully did John Evelyn, the disciple of nature, exclaim in one of his most enthusiastic bursts of eloquence on forests : "Here, then, is the true Parnassus, Cas-

talia, and the Muses; and at every call in a grove of venerable oaks, methinks I hear the answer of a hundred old druids, and the bards of our inspired ancestors. In a word, so charmed were poets with those natural shades, that they honored temples with the names of groves. In walks and shades of trees, poets have composed verses which have animated men to heroic and glorious actions. Here orators have made their panegyrics, historians their grave relations, and profound philosophers have loved to pass their lives in repose and contemplation."

"Genius of gardens! Nature's fairest child!
 Thou who, inspired by the directing mind
 Of Heaven, didst plan the scenes of Paradise!
 Thou at whose bidding rose the Hesperian bowers
 Of ancient fame, the fair Aonian mount,
 Castalian springs, and all the enchanting groves
 Of Tempe's vale; O where has thou been hid?
 For ages where have strayed thy steps unknown?
 Welcome at length, thrice welcome to the shores
 Of Columbia's world; where verdant plains,
 Where hills and dales, and woods and waters join,
 To aid thy pencil, favor thy designs,
 And give thy varying landscape every charm."

CORDON TRAINING OF FRUIT TREES,

ADAPTED TO THE ORCHARD-HOUSE AND OPEN-AIR CULTURE.

BY REV. T. COLLINGS BREHAUT.

REMARKS ON TREES IN POTS.

THE Cordon system, in its various forms, is admirably adapted for potted trees.* My own trees in pots have succeeded admirably, and there really seems no other way of treating them. The only real difficulty I have ever experienced in Orchard-house culture, has been to keep away the red spider.†

* See pages 54, 55, and 56, Orchard-House; by Mr. Rivers.

† We are a little surprised at this confession of Mr. Brehaut. That the red spider is a pest to the cultivator, we must frankly admit; and in ignorant hands difficult to eradicate. But after all, it is no great terror to a skilful man. It is quite as easily got rid of as the green fly, and of the two insects the latter, on

The green aphid, when neglected in the spring, has sometimes destroyed the fruit of whole trees, with the ends of the young shoots. But as this did not form a part of the Cordon system it produced confusion in every part. But there is a remedy. The green fly is easily destroyed by mixing two ounces of tobacco in a quart of boiling water, and when cool, gently brushing the leaves *upwards* with a soft brush dipped in the infusion. The blue aphid on the plum, and the dreadful black on the cherry, are to be similarly welcomed. The brown aphid feeds on the young shoots of peaches in early winter, and must be dealt with in like manner. But all these fade into insignificance when compared to the pest of the house, the red spider. This dangerous foe requires early attention. A small magnifying glass will discover it, like a grain of red sand, slowly walking over the under side of the leaves. But, after a little sad practice, one glance at the yellow spots on the upper surface of the leaf is enough. This disaster arises generally from confined and heated air, and insufficient syringing. Indeed I found that near the ventilators,—I mean those at the top, where the air is rarified by its ascent,—and at the very lowest parts of the stems, where it was difficult to apply the syringe, and behind even a slight pillar, three inches in thickness, which screened a few leaves from the shower of water,—in these *three places alone*, did the red spider first come, and was so rigidly syringed down that he made little further progress. But the Gishurst compound is an excellent cure, and not dear to purchase, say two ounces per gallon of *rain water*. Syringe the afflicted parts well; or, I should say, *under* them, because it is often by syringing above the leaves in a graceful manner that the only efficient way of watering the under portions, *where the insects are*, is neglected. With these precautions, and avoiding this

some plants, is the most troublesome. One single fumigation with sulphur, *carefully* done, will destroy every red spider, or a dose of whale oil soap will effectually clean the plants. The proportions of the soap mixture are *one pound* of soap to *six gallons* of water, using *hot* water to dissolve the soap, and diluting with cool water. The sulphur should be *fumed* on a warm flue, *not burned*, and six pounds may be used in this way without any injury to the plants. As to destroying the red spider by syringing with water, there is no such thing; it will keep them in check, but nothing more. We have known many gardeners to insist upon this, but we never saw them accomplish anything.—Ed.

sprinkling when the sun is on the leaves, (so as not to bury them into holes,) the amateur may be at peace.

I always followed Mr. Rivers's directions in planting pretty closely, and wish now to add, that it is of much importance to pot early, even just as the leaves are falling, because the trees are less checked. In October and November, then, let the bush or pyramid trees, &c., be potted very firmly with plenty of drainage and calcareous matter, good loam and very old manure. The whole should be firmly beaten into the pots, and some loose manure suffered to lie on the surface. Then give a good watering or two, and let them rest without water, unless the roots shrivel during the winter months. The orchard-house is then supposed to be gay with chrysanthemums for which it is extremely well adapted. Range the trees neatly side by side at the lower end of the house, and by elevating a row or two of the flowers, they may hardly be seen. Ventilate in fine weather, but shut up in frosty and windy days. As to the trees which have borne during the past year, the amateur will know how to manage them; that is, the roots which have penetrated through the five holes—the best number—at the bottom of each pot, must be cut off, and five or six inches deep of the old soil being neatly picked out of the pots, to about four inches of the edges, fresh good loam and manure must be added. By no means let the trees be taken out of the pots, as ignorant gardeners will be sure to advise. Soak once or twice with water, and place the trees with the others to rest. In cold localities the house must be well shut up when the weather is severe; and should the temperature sink below zero, then some dry hay among the pots or round them, and over their surfaces, will be very useful.

As February comes, place the trees three feet apart from stem to stem in their places. A house of thirty feet will hold at least thirty fine trees. I have many more, but these are pyramidal or slender Cordons, and take far less room than the bush trees. Therefore the amateur must be guided by circumstances, as he can always remove superfluous trees in July out of doors to make room for the rest.* Some of the

* In our warmer climate, and brilliant sun, the trees may be removed to the open air the 10th of June, where peaches more particularly will only acquire any

fruit-bearing bushes may also be placed close to a warm wall, between the wall trees, to ripen their fruits, which they will do a week or two later than if kept in-doors. I found the fruit smaller in size, but generally finer in color. By March all pruning must be over as before directed, and watering, except in severe frosts, begin. Ventilate in mild or sunny weather, but let the house be closed up in windy weather, or at night. Changes of temperature or high winds are now fatal to the blossoms, and the trees look most beautiful. A handsome orchard-house of great length will look extremely like a well-filled conservatory at this period; the various-colored blossoms making a gay and cheerful appearance, all the more precious because of the coldness of the out-door weather. But on sunny days, with the ventilation then needed, the air will soon be heated by some 10 degrees, and be refreshing to the invalid, resembling that of a southern climate.

Having spent many winters in the south, I can answer for the resemblance in the dry and fragrant temperature; perhaps the less we talk about the latter quality in the south the better, except among the orange and lemon trees. I can imagine nothing more refreshing than for a studious man to have a long walk like this opening out of his study. Every time he raises his eyes he is delighted with the lovely view,

flavor. A peach grown in an orchard-house, unless the sashes are wholly removed in June, is worthless, only to look at; flavor it has little or none. Perhaps plums and nectarines had better remain in until all danger of the curculio is over, when they should be exposed to the open air, choosing, as Mr. Brehaut advises, a sheltered place where the wind will not shake the trees or bruise the fruit. Every fruit tree left in the house is done at the sacrifice of *quality*, though their beauty and size may be enhanced. In September, when high winds often occur, it may be well to remove pears back to the house to prevent the loss of the fruit.

Though most American cultivators know the character of the climate of Great Britain, it may be well to remind them of the great difference, by a brief statement of the temperature of July, as compared with our own. The data are taken from a table kept at the London Horticultural Society's Garden at Chiswick:—

The night temperature varies from 39° to 55°, and the day temperature from 66° to 80°, rarely more than 72°.

In our climate the night temperature varies from 50° to 75°, and the day temperature from 70° to 100°.

In fact many of the nights of July are as cool as with us in April, when a fire is required in our early graperies.—Ed.

and when, unable to resist the temptation, he arises and strolls through his young trees, all so familiar to him, how can he refrain from being thankful for such precious gifts! A house 100 feet long will furnish him, in its two paths and extremities, with 250 feet of space for exercise, unexposed to the weather, and from which he cannot but return to his labors much strengthened and revived. These young trees are highly suggestive. In their growth, in their production, in their rest, and in their decay, they are all potent images of our own harassing career, and of its final close.

When the young trees are in bloom they require much care—they should be well watered,* or the fruit will not set, and a gentle shaking will tend to facilitate this important operation. A rather high and constant temperature is also now very necessary. When, about the end of April, the fruit begins to “make its first swell,” (as gardeners say), begin to syringe but gently, and under the leaves only, and do not neglect to water the trees, especially in warm weather. Ventilation is now of great importance, and, in May, all these cares are doubly needed. Worsted netting will diminish draughts, and keep out sooty particles, so that orchard-houses, by this simple precaution, succeed admirably in large towns. The summer pinching-in of the young shoots on the spurs will now have fairly commenced, and the amateur be in full career, as this is an important period.

Syringing early, say before 8 o'clock,—and late, after 6 o'clock in the evening, when there is little sun to hurt,—must now be carefully attended to, under penalty of insects' tyranny. Trees three years old require two or three quarts of water at a time, and I find it far better (as indeed it is in the case with flowers), to *soak them occasionally* than to sprinkle the surface daily. Trees seven or eight years old require one gallon of water at a time,—thus a good garden engine is very useful and saves time. Trees in the borders of course require less water, but they should be soaked when it is done.

By the time June comes, the fruit will be getting large, and syringing be required vigorously. There is now no dan-

* No syringing is here meant.

ger of shaking down the young fruits. Some plums can be put out of doors, and some apricots also, but not unless so needed from want of room. Every care must be given to ventilate the house *by night* and by day, or the worst consequences will follow. The potted trees should be lifted up once this month, and once in July, to check the luxuriance of the roots getting into the borders. Plenty of watering and syringing in July, and fresh compost placed on the surface of the pots, to be washed in by the daily waterings. July or August is the best time for removing trees for fruiting in the open air, as the season is most propitious for them; and after having been prepared by the two previous breakings-off of the roots, (when lifted, as before directed), they suffer no check, and the fruit is of a suitable size for being completely ripened. Some trees can be placed near a west wall to retard them by a fortnight, so as to have a succession of fruits. When the windy autumn comes, care must be taken not to let the ripe fruits be shaken off by gusts of wind. Ventilators to leeward are then invaluable. When October and November return, the potting of new trees (to increase the stock or as a reserve), and the renewing of the top soil of the older trees, takes place. This is a busy time, and should be carefully attended to. Unless watched, servants will not take sufficient care, either in syringing, ventilation, or potting, the three most important duties of the orchard-house.

This is, in fact, the *only real drawback* to the success of the matter. No one can fail if he attend to these particulars, but wherever you read of failures it is caused by some prejudiced domestic or inattentive master. I find 18-inch pots the most useful size; but trees, in 18-inch pots, are extremely enticing to cultivate. Of course the rows nearest to the lower portions of the house must be bush trees, with open centres; then should come handsome spiral Cordons of all kinds, and, in the higher rows, pyramidal apricots or peaches; and, if a lean-to, Diagonal Cordons on the wall.

Trees in pots bear very well; the branches should not be pinched back too abruptly, but allowed to elongate much farther than they will ultimately be cut down to in the winter. If the ends are too closely pinched in, then the lateral

shoots will grow too fast; and if these too be also shortened, the tree may be unduly dwarfed. Neither, on the other hand, should a rank luxuriant growth be encouraged, by allowing too great length in fast-growing sorts, or by stimulating the roots by excess of water, and too large supplies of manure, because these trees will not readily bear under these conditions, and if once they get into the habit of thus extending, it is surprising how difficult it is to keep them under in pots.

But with ordinary skill, and the attention required to the common things of life, there need be no apprehension entertained of failure in pot cultivation of fruit trees. There is an annual crop of feeding roots from above, and one from below, and if unpruned, these last would descend into the border, and thence draw too potent nourishment. Lifting the trees in June and in July prevents all this. If the trees be in borders, then annual removal (which is less severe, whatever may be said, than biennial,) has the same effect. The roots are kept compact, and a healthy development of spongioles induced close to the root stem.

HOW TO SUPPLY BLANK SPACES IN CORDONS.

It will occasionally happen that, in spite of every care, blank spaces will appear on the leaders of the various kinds of Cordons. These occasion the only disfigurement possible in the whole system, unless in the case of severe blight out of doors, which calamity is common to all kinds of training, and, therefore, requires a remedy, which is, fortunately, simple and efficacious. Wherever, then, a whole spur has died off, or been destroyed by accident, one of the shoots of the spur immediately below this spot should be allowed to grow to twelve or fifteen inches in length. It will do so by midsummer, or at least by the beginning of August, during which period is the proper time for applying it to fill up the vacant space.

It is done thus. See that this shoot fit flatly and neatly to the spot on which it is desirable it should ultimately grow, and having marked lightly the *boundaries* of the proposed excisions and incisions, which are to be $1\frac{1}{2}$ inches in length,

both on the shoot and on the leader: the succeeding process resembles budding roses. For a cut $1\frac{1}{2}$ inches long being made lengthwise through the bark of the leader, two more transverse cuts are next made through the bark, one at either end of the first cut. Take care not to cut too deeply, and do not lacerate any part, or the place where the descending fibres of the new roots are to be will be ruined. Carefully then lift up the bark and make it thus ready, as in budding roses, to receive the new shoot under the bark. This shoot, having been marked where it is to meet the opened bark, must be now operated upon. A slice is to be scooped out of it, cleanly and neatly, $1\frac{1}{2}$ inches long, and the shoot must then be neatly slipped into the orifice, and under the bark of the leader.

I must not omit here to state that a bud must have been managed to be left in the side of this shoot, which is just *opposite* to the sliced-out part, so that when it has been slipped into its place under the bark, this bud shall appear protruding, exactly as in budding roses. Proceed then with white worsted to bind carefully round all the parts operated on, *leaving out the bud*, and bind the shoot into the leader. By this means you will exclude all the air. If neatly done it will surely succeed. All which I did last year succeeded, and were so firmly united that they bore fruit, but did not ripen it.

In the ensuing spring, the ligatures being removed, the shoot will be found united, inarched in fact, into the leader. Then divide the shoot, just behind and under where it is growing into the leader, leaving it there as a new spur, while the remaining portion, *still attached* to the lower spur, is bent back to its former position, and cut back to two buds, as required. Thus there is a new spur gained, without loss to that from which it was supplied. In this way all blank spaces are readily filled up. Should, however, any one be desirous of budding to fill up this blank, then let a triple bud be selected; but it is, at best, a hazardous experiment, except on very young wood, while the plan recommended is far safer and quite as easily executed. This method is much in use in France, and called there "*greffe par approche herbacée*." A neat illustration can be seen in M. Dubreuil's work, at page 7, ed. 1857.

OBJECTIONS TO CORDON TRAINING ANSWERED.

The first objection to Cordon training seems to be its apparently artificial form, by which the tree, being closely spurred in during the summer, is more rapidly exhausted and its duration diminished. You hear people after passing by the Cordon trees with "faint praise grudgingly given," even to visible results, come at last to some other specimen, trained on obsolete systems, and exclaim, "Ah! this looks like a tree." A sigh of relief at their torture being now over, proves the sincerity of their present words. How often has it been my fate to hear such observations, not from prejudiced and ignorant men, but from otherwise well-informed people. I really think that in this, as in many other cases by the bye, that the fairer half of the creation has shown a higher discernment. It is truly astonishing how soon intelligent ladies will surpass us in horticultural pursuits; and, no doubt, the day is at hand when the *soi-disant* lords of the creation will surrender the management of their orchard-houses to the more enterprising management, certainly to the more patient investigation of causes and results—of their help-mates. They at least have generally taken on trust what they did not immediately apprehend; and at the end of the season been able to rejoice in their decision.

But in the case immediately referred to, all experience, as yet, proves that no exhaustion of the trees, nor shortening of their lives, takes place. And if it did, the remedy is so obvious and so cheap as to make this objection futile; for as long as half-a-dozen trees in pots can supply a reserve, nothing further need in reality be urged. Still it must be added, that if excessive production be the cause of the destruction of the trees after a certain number of years, then this is by no means an unpleasant occurrence, for the fact is, that they at present bear very little in proportion to the time and labor devoted to them. But how long it will take to exhaust the trees is not confidently stated by any one; and for this excellent reason, that no trees have as yet been exhausted after fifteen years' trial, nor are any cases likely to occur for a longer time.

When we consider the "fast habits" of the present day, it

would seem strange if trees did not partake of the general rapidity of circulation ; and no doubt a "fast nectarine" has good cause to look back at its "slow but not sure" rivals toiling painfully up the walls.

In the case, too, of horizontal Cordons and standard pear trees this objection does not apply, for these are the slowest portions of the system, and by no means the most productive.

But the next objection is of a widely different character. Now it is argued that the sap of the tree, far from exhausting the whole, will, by being kept within undue bounds, act with such vigor on the shoots, that they must become elongated or wood shoots, and bear no fruit, especially in our moist climates.

To this it is answered, that in the dry atmosphere of the orchard-house no such result need be apprehended ; while in the case of trees in the open ground against walls, the growth of the leaders depends mainly on the powers of the roots, and these are greatly checked in their lateral expansion by the nearness of their neighbors. At the most, thirty-six inches is but a limited space for roots of trees to expand laterally. Again, root pruning, or annual lifting, is quite as easy of application to any cordon tree as it is to other trees ; nay, easier, for many reasons.

Besides, any gardener knows, that by allowing a foot or two of the leaders to grow beyond the wall, and thus exhaust the superabundant sap by gradually bending these downwards, and shortening them in the autumn, these things greatly tend to keep the balance of growth preserved. The borders of any trees should be well drained ; the trees should not be stimulated with too rich materials, and any protection to ward off the heavy autumnal rains by a broad coping (such as the old monks always had on their walls) at the summit, and some planks sloping over the border,—these last being also of a good slope. With such precautions, indispensable under any system whatever, there is no ground for such fears.

It is also for this reason chiefly, that triple Cordons are recommended by me, having tried the single ones previously. These last succeed well in France ; and if any one will reflect

that a Diagonal Cordon tree, with three leaders, will, on a fair wall, cover about sixty square feet, why should it be less likely to bear than another tree nine feet in extension by seven in height, which contains sixty-three square feet only? In the latter case everyone knows that a tree of this kind can, and will produce some five dozen peaches yearly; but in the case of my own Diagonal Cordons (under glass, it is true), they produced at the rate of 150 or more peaches on the same space. As to pear trees on this plan, I am convinced that they will succeed admirably, all conditions for success being duly observed. I have none whatever under glass, because the climate of Guernsey, where I reside, does not require this; but neither does it in any part of England, except far north. Out of doors I have this year some fine specimens of fruit, although many of my pear trees are much younger than the peach trees.

CHERRIES.

THE day of cherries has gone by. So long as our wise legislators forbid the destruction of the robin, so long must the cherry be an unknown fruit. Not long since they were as abundant in our markets as strawberries, but the quantity has "become smaller by degrees and beautifully less," until they are scarcely seen at all. For twenty years, with a very large number of moderate sized trees, we have never been able to gather a peck of fruit. All is taken by the greedy birds, even before they become large enough to be useful in any way, and save only occasionally, when we have covered up a branch of a tree with fine muslin, through which they could not peck, we have not seen a full grown and perfectly ripe cherry. As much as we value the robin on the farm, we think him a worthless scamp in the fruit garden; and if our law makers were any of them intelligent cultivators and loved good fruit and plenty of it, we are sure they would modify the law in such a way as to allow their destruction

where their services were not wanted. One has only to watch them a few days to become convinced that their gormandizing habits are quite unknown, and their insect destroying character entirely overrated. Earth-worms and fruit are about all they eat, and the quantity they consume is scarcely less than that of a moderate sized chicken.

It is useless to attempt the production of the cherry as an orchard fruit; if we are to have them at all it must be in the orchard-house where they can be safely protected by nets. Mr. Rivers, whose well known love of orchard-houses is familiar, advocates the growth of the cherry under glass in order to save their fruit; the blackbirds and thrushes doing for him what the robin does for us, save this difference, that the blackbird and thrush repay him in exquisite song, and not the monotonous and noisy twattle of the robin thief.

Mr. Rivers has so well set forth his cause that we copy it for the benefit of all lovers of cherries:—

I am a great lover of birds and also of cherries; but, in the last mentioned love item, the birds beat me hollow, for I seldom or never see one ripe on my standard trees in the open air, and if I protect my dwarf bushes with nets, the blackbirds and missel thrushes tear them open with their strong claws, and chatter defiance when I approach them. I began quite to yearn for ripe cherries and to cast about how I should procure them, when the orchard-house culture of them occurred to me. I therefore consulted our oracle, and built a small span-roofed house, 25 feet by 14, 9 feet high to the ridge, and 5 feet high at sides. As it is not in an ornamental part of my garden, I had the sides and ends made of 2-inch boards, with a shutter on hinges a foot wide on each side. I made a path 3 feet wide along the centre, and planted on each side of it a row of nice pyramids of the compact-growing varieties, such as the May Duke, Archduke, Duchess de Pal-luau, Empress Eugenie, Reine Hortense, Nouvelle Royale, Royal Duke, and Coe's Carnation, all budded on the Mahaleb stock and planted about 2 feet 3 inches apart. Behind them, next to the sides, I placed some low pyramids and bushes of the Bigarreau and Heart cherries budded on the;

common cherry stock; and, as these cherries are all vigorous growers when planted out, I had them potted in 18-inch pots in some light sandy loam and manure from an old hotbed, two-thirds of the former to one of the latter, well rammed down, so that the surface of the earth was quite hard. On this hard surface I placed in March some manure two inches thick. My success last summer (1861) was quite refreshing, for the very few cherries on my trees in the open air were quickly dispatched by my singing friends, the blackbirds and thrushes; but my house full of fine ripe fruit was effectually "tabooed" in this way. As soon as my cherries began to color—i. e., when boys gobble them down declaring they are ripe—I had the shutters opened and some iron wire netting, with meshes about an inch in diameter, placed over the apertures occupied by the shutters when closed. This was nailed firmly inside to the sides of the house, so as effectually to resist the fingers of boys and the claws of birds. By placing it inside, it does not hinder the shutters being closed when the house requires fumigation, which with cherries, so liable as they are to be infested with black aphid, is frequently necessary. This is one of the reasons why I recommend cherries to be cultivated in small houses appropriated to them only, rather than in large houses with other orchard-house trees. Another reason is, that they require less syringing than peaches and nectarines, for a thorough syringing once a week before 8 A. M., during the growing season, will keep the leaves and fruit free from dust, and as soon as the latter commences to color this may be discontinued, or the large and fine sorts, such as the Elton, Bigarreau, and others, are apt to crack. Cherries while ripening delight in a dry warm atmosphere, such as they rarely have in England in the open air, but which in an orchard-house exists in perfection.

In the commencement of this article I have named such compact-growing sorts as may be cultivated as pyramids and planted out on each side of the central path. I will now point out some varieties which succeed best when grafted on the common cherry-stock, and which are of too vigorous habits to be planted out in a small house, but which may be cultivated with great success in 18-inch pots.

The most select of this class are the Elton, Downton, Bigarreau, Black Tartarian, Belle d'Orleans, Early Purple Guigne, Florence, Knight's Early Black, Bigarreau Napoléon, Governor Wood, an American sort, and some of the French Guigne cherries which do not succeed well in the open air in England, such as the Guigne Grosse Noire, Guigne Grosse Rouge, Guigne Rouge Tardive, Guigne Marbrée Précoce, Guigne Marguérite, and some others. The Late Duke and Morello should not be omitted, for if kept from wasps by the trees being enclosed in bags of tiffany, they may be had in perfection till late in October.

All cherries under glass, whether planted out or in pots, must be under one system of pruning, or rather pinching, for as soon as a young shoot has made five or six leaves its top should be pinched or cut off to three full-sized leaves, not counting two or three at the base, which are generally small and without buds in their axils. This pinching process must be continued all through the summer, till the trees cease to make young shoots. My cherries commenced to ripen last year (1861) something in the following order:—The Empress Eugénie was the first to show color, followed closely by May Duke; but the first that ripened were the Early Purple Guigne and Belle d'Orleans, and this was the first week in June, or thereabouts. The latter kind is remarkable for its sweetness; but it is not so piquant as the former. Empress Eugénie is much like the May Duke—not quite so rich; but, from its ripening eight or ten days before it, it is valuable, and it bears abundantly. Among early kinds, Knight's Early Black takes a high rank, and that very old and rather acid small cherry, the early May, is really worthy of a pot, for it ripens very early, and in a sunny season in May, thus doing justice to its name. The Elton is remarkable for its fertility and the richness of its flavor, when grown under glass; and the Florence, with its very firm flesh, when fully ripe in August, is excellent. I need not, however, particularize any further, for, as far as my experience has gone, all cherries, when well ripened, are most agreeable. The great satisfaction a cherry-house gives is the certainty of your fruit being safe from boys and birds; and I felt pleasure last year when,

towards the last week in May, I saw my trees full of fruit, just showing their cherry summer-reminding tints—put a padlock on the door and put the key in my pocket, only to be delivered occasionally to a trusty man, who gave the trees water when they required it. My cherry-eating visits to my house continued to September, and it was really a pleasure—although a small one—to watch the progress of my trees, to taste the different varieties, and to take notes as to their periods of ripening and their qualities. As small pleasures help to brighten the path of life, allow me to advise some of your readers to build a cherry-house, and try and find one most agreeable source of satisfaction.

IN-DOOR GARDENING.

FROM THE GARDENERS' CHRONICLE.

Window gardeners ought to be above "green fly." Still it is a melancholy fact that these flies do come sometimes, and that they are great nuisances; sometimes on spring bulbs, if not watered properly; sometimes on verbenas, if without sufficient air; on roses, if too dry; perhaps I may say on everything, if not closely cared for. There is, however, one remedy so useable by ladies, and so perfectly free from any sort of annoyance, that my object to-day in writing of green fly is to suggest the use of Dumont's Insect Powder, sold everywhere in little elastic balls by chemists, and perfectly invaluable for the destruction of these insects. So rapid and so sure is it in its work, when once it has been dusted on the branches infested by the flies, that I am quite debarred from using a popular Americanism, and saying that they "make tracks," since in point of fact the creatures vanish tracklessly, leaving no trace behind. The powder is itself quite harmless, and should be dusted on as slightly as possible when the plants are dry.

To-day I name these things particularly because they afford a means of really keeping the atmosphere of the plants in some degree moister than the dry air of our rooms. The

moss that fills these stands sends up an unseen vapor—the roots are kept too well supplied with moisture, and thus if shaded only from driest rays of sunshine, plants brought in in blossom will stand for a long time.

At the present time our stands are “filled” with a single plant; one great white azalea, standing with drooping boughs and its lily-like blossoms, makes a more lovely picture than a dozen colors. Low-growing mosses, little ferns, cyclamens, and blue scillas are, for such, a ground work among the most appropriate. How to keep these things healthy ought not to be difficult. The grand thing for this is to provide a cover! It is perfectly absurd the way in which people think of what they see their plants suffer, wholly forgetful of their acuter sufferings where given up to the tender mercies of housemaids and their brooms; good housemaids doubtless cover up the furniture, but they are the last gardeners to whom I would trust my plants. Fancy the plants—groups of fragile flowers at the point of every spray—and fancy the covering, even though perhaps it is light, thrown over these and resting against or knocking off the petals! The very first step taken towards making flowers last will I am sure be found in something like Chinese lanterns. Great thin paper or transparent linen covers, made up on slender frames, and put over the stands each night like a large bell glass. There is always some slight change at night in the temperature of a room, and a plan like this equalizes and confines that air which surrounds the plants. It protects them from dust, and more than all it shelters them from the draughts that are prevalent in the early morning.

This being arranged, a regular morning's task should be to see what plants require water, everything being watered always with warm water. Azaleas in blossom should be daily watered, and sometimes it is practicable to bedew the foliage from the side away from the window, so as a little to refresh the foliage of the undergrowth, without letting water fall on the open blossoms. Sometimes, too, while a plant is blossoming, there is a sort of gap between two sets of blossom; with roses and azaleas this very often happens. Then the foliage and buds can have a thorough dewing. The cycla-

mens, also, in which I so exceedingly delight, derive untold benefit from a proper washing every few days or so. The foliage looks charming when kept so fresh and clean, and a plant I had last November beginning then to blossom, has now got upwards of 80 buds and blossoms still; the scent too becoming more and more delightful.

It is a heavy trial, these said cyclamens; they ought to be close to the light; and who can resist having them on the table! However, if anything, they are prettiest by candle light, so it is possible to give them by day the full light they crave, and yet to enjoy them perfectly in the evening. Mine are watered every morning regularly, but never are allowed to be in the least sodden; being lightly potted, the water runs through quickly, and is instantly discontinued. Each plant receives thus about a coffee cup full daily. These plants, however, are standing out, contrary to rule, in flower pots. Violets I find do best treated in exactly the same manner. Neither seem to bear being covered up, or having a steamy atmosphere.

My cyclamens I should mention are all *C. persicum*; the best has foliage a very little marbled, but the great fragrance I attribute a good deal to the healthiness of the plant at present, since at first it certainly was not sweet at all. My plants were obtained at Messrs. Hooper's, of Covent Garden, but I do not know if they have any especial strain. The scent exactly resembles that of a very delicate lemon-scented geranium. It is not in the least like that of the more powerful perfume of some other kinds of cyclamens.

There is something extremely charming to the mind of a window gardener in being able to point to some special plant, and to declare she grew it. New beginners sometimes are, indeed, so tenacious that they quite look down upon buying even seedlings which are ready raised. Still this, by London people who have not got a hotbed or a heated seed-bed, or any sort of greenhouse, may fairly be looked upon quite as an advantage, in the case of tender annuals, or other seeds of this kind.

I confess, notwithstanding, my sympathy is with the former class—it is so pleasant to have all the work oneself. Nor

shall I soon forget a box I had one spring, in which it seemed to me that every seed came up, and which stored my windows afterwards with many delightful flowers.

The great thing of course is to sow such seeds as will bear pot culture, and to sow moreover what will do well in the place we live in. In London it seems to me that plants which grow up most quickly are those that answer best; and then we have to bethink us of the sweet smelling things and also of those that remain long in blossom.

In towns it is a blessing that people are not critical in regard of flowers, everything green and bright finds a most ready welcome, and hence the tangled balconies wreathed with dark tropæolums, and festooned by branches of cobœas and sweet peas, which look so fresh and gay. The seed sowing has two classes. There are the hardy annuals, which ought to be sown directly; sweet peas, mignonette, minor convolvulus, white alyssum, tropæolums, asters, nemophila, Indian pinks, larkspurs, and stocks, all of which require pots of soil, not quite brimfull—the seeds to be scattered thinly, and to be covered about their own depth with some soil or cocoa stuff. Kept moist, but not watered overhead, these things come on well in a light and airy place. A frame on the leads, if there is no other spot for one, or a box in a window, will bring them on very well, the great thing to rejoice in being a short and stumpy stature, to attain which advantage we must thin or prick off carefully.

The more tender annuals are however the interest of this season. The exquisite Ipomœas, with their bells of white and blue and rose and purple, which grow so quickly and blossom so profusely as to render themselves amongst the most general favorites, ought now to be sown in-doors. Last year I had quantities of these pretty flowers trained over wire stands and up beside some windows, and though they do best in a sunny aspect they still require to have a great deal of shade and water. The pleasantest plan of any is to have a wire frame or trellis filled up low down with shorter bushier plants, which screen, but do not very often mix with, the climbing things behind.

The *Ipomœas* do best, if in 5-inch pots, when they are sown about five or six all round; but for the earliest flowers I have always found that a single seed sown in a three-inch flower-pot and left undisturbed will be sure to give a bright little wreath of blossoms. *Burridge*, rose-colored; *Bona Nox*, white; and *rubra cœrulea*, a purplish blue, are very pretty kinds. It is best, I think, in sowing to leave a hole in the middle of the pot, or to scoop out a little ditch round the edge, in which to pour the water. It never does with seedlings and amateurs to set the seed pots floating. The object is simply not to wet, but to keep the soil from actually drying up.

Digging the surface is also a great thing. Fault of a better spade a steel pen answers well for this purpose; and surface roots with seedlings ought to be much encouraged by little earthings-up when we see tiny white points appearing.

Balsams again are most amusing things to grow, because they contrive to get over the ground so fast. A good plan is that of sowing first in small 60-pots, letting them make their way up through successive changes, watering well, and giving them a warm and light and very well sheltered place. I say well sheltered, because no one knows how easily the stems of balsams snap. This reminds me of flower sticks. Ladies are frightfully apt to bury just one inch of the stick in soil, and then to wonder that the support is shaky. Where a pot is being prepared for even a seed which is destined to grow up in it, the future flower stick should be fixed in with the soil, going down absolutely to the very hole, and being surrounded by the drainage. A shaky stick is always hurting not only the stems but roots, not to speak of its unpleasant quality of making the whole untidy.

Celosias are very pretty plants to grow in pots, and so are some of the *amaranths*, treated like balsams, only with less water. *Canary-flower* ought always to be sown in the pots in which it may remain, and a large drainage hole in these cases is a great advantage. Transplanting or pricking out climbing plants is always injurious, as it checks their growth. Then there is the charming *phlox Drummondii*, and *mimulus*, *Indian pinks*, *primulas*, *lobelias* and *petunias*; even most

part of the hardy annuals, which are none the worse for a little heat. The only thing is to mind they do not get drawn up too tall, for it is not always gratifying to be assured "our plants have been growing beautifully—they are—oh *so long*!"

A very great point, indeed, is to guard against heavy showers and against twisting winds. A little dew might benefit the young plants; but if they are grown in boxes or plant-cases, closing up the front when the sun is shining provides an instant vapor bath and an immediate shade from what would be too hot.

A thin sheet of moss laid over each pot is said to be very useful in keeping the soil from drying, and so it no doubt is. Still there is the awkwardness of separating it if the plants must be pricked out, and one is apt to fidget about small things getting choked. Unless therefore they are seeds sown to stand, I hardly advocate the use of the moss by window gardeners, except to cover the drainage. Sweet peas and climbers root down into it wonderfully. I even mean to experimentalize on no drainage, but a quantity of moss.

In growing seeds in plant cases I think it is best to give no hot water at night. It saves a vast deal of "drawing up," and if the top of the case is open then it is all the better. I always am glad to give a quite cool place as soon as may be to seedlings. Many too, as German asters for instance, require to be where they can have light on all sides to keep up the pyramidal form, and this is hard to give where we have a crowd.

FLORICULTURAL NOTICES.

THE AZALEA.—The motto of the horticulturist is "Onwards;" and among the objects of his solicitude, even the Indian Azalea, one of the aristocracy of the floral world, must keep pace with the times, and conform to the rule which this motto suggests, if it is to maintain its position. That position is doubtless a high one; for of the flowers which have won their way to popular favor there are none,

perhaps, which are capable of producing so bewitching an effect upon the beholder as the azaleas, with their lovely hues spread out in rich profusion, as may be seen at any of the early summer exhibitions, where they always form the leading feature.

The past season or two, as well as the present, have witnessed some very satisfactory advances both in the quality and character of this superb flower. This last year we had as a novelty a variety called *Kinghornii*, which shows a very near approach to perfection in respect to the form as well as to the substance and smoothness of its flowers, which high qualities it presents along with the additional recommendation of a very pleasant looking rosy color. Then from the same stud—Mr. Kinghorn's nursery—we have lately had another named *Mars*, which, to a more than average amount of general excellence, adds the richest and brightest of those light reds, approaching scarlet, which has as yet been obtained in this family. So much for past seasons.

The spring, which is now just merging into summer, has presented us with some advances in another direction. Probably, all points considered, the most perfect and meritorious of the novelties it has introduced to us is that called *Duc d'Arenberg*, a variety of Belgian origin, shown by Messrs. Smith, and of which some very small examples only have as yet been seen. We may picture this variety as being one of the most perfect in form of those delicate looking salmon pinks, bordered with white, of which we have examples in the old *variegata* and the new *President Claeys*, but the bordering is here remarkably broad and distinct, there is super-added some unusual spotting which much increases the charm of the flower, and there are also occasional carmine stripes. The spotting in this fine and novel variety occurs at the base of the upper segments just beneath the sinus, and is of a deep rose red. Inferior doubtless to this in point of form, but yet a most striking novelty in respect to color, is another Belgian variety, with semi-double flowers, called *Souvenir du Prince Albert*, which was produced by Mr. J. Verschaffelt at the very last meeting of the Floral Committee. The ground color of this entirely novel flower is a deep bright

rosy red, almost crimson, and this is edged by a broad margin of pure white, the contrast between the two colors being very striking and much more marked than in any other variety yet raised, so that we may say of this *souvenir* of a good man, that it will also be a charming plant either for the exhibition table or the home stage. One other move in the right direction—albeit in a direction different from either of the preceding—we have observed in a variety named *Rifleman*, shown by Mr. Ivery. In this last the color is white with stripes of bright carmine occurring here and there, and the flowers are semi-double, the semi-duplication being produced not by a tuft of crumpled segments formed of petaloid stamens within the proper corolla, as is the usual condition of the so-called double azaleas, but by the presence of a second row of broad flat smooth segments like those of the outer or normal corolla. It does not require any very deep discernment to see that a race of double flowers formed on the plan indicated in the blossom of this variety would be very much superior to those in which the inner segments were small and crumpled after the now usual model. Thus it is, we think, evident, that the Indian azalea, having reached a very high position, is still working its way not only in the direction of desirable novelty, but also towards perfection.

While writing of azaleas we cannot forbear expressing surprise that two little gems of this family brought from China by Mr. Fortune and named respectively *A. obtusa* and *A. amana*, are not more commonly cultivated. The latter, indeed, being the most recently introduced of the two, does now and then make its way into our flower shows, but the former is very seldom seen at all. It is not however as exhibition plants that we allude to them here, but as small flowering shrubs for conservatories, and as little bushes for drawing room flower-baskets, for which situations they have few rivals, their habit being so neat and compact, their bloom so profuse, and their colors so rich and effective. These two plants are quite distinct from the varieties of *A. indica*, though associating with them in habit and cultivation.—(*Gard. Chron.*)

NEW PETUNIA.—Mr. J. Cadness, of Flushing, L. I., has raised a new and beautiful double petunia, which he has

named Gen. McClellan. It was exhibited at the Brooklyn Horticultural Society, in April, and attracted much attention. It is a very full flower, of a deep rose color, mottled with pure white, very distinct and clear. The habit of the plant is robust and vigorous, and a very free flowerer. It was awarded a special premium.

MASSACHUSETTS HORTICULTURAL SOCIETY.—The opening show of the season took place on Saturday, May 24th. The principal exhibitors of plants were Messrs. Hovey & Co., who had six azaleas; among them, *crispiflora*, Model, (new and fine,) *Osborni*, and others, all pyramidal plants covered with bloom. The *pelargoniums*, both fancy and show sorts, were unusually fine, and embraced *Napoleon III.*, *Mad. Pescatore*, *Glory of America*, a beautiful spotted sort, *Viola*, *L'avenir*, (striped,) and others. Fine large specimens, three feet high, of the *Cavendish* heath, *E. ventricosa coccinea*, *Hartnellii*, *intermedia*, and others. The pretty blue *Tetrachea*, *Statice Halfordi*, large *Rhophas*, the fragrant *Rhyncospermum*, and others, made up the collection of 12 greenhouse plants. A very superb specimen of *azalea Decora* from I. Sargent, Esq., a *Medinilla magnifica* from E. S. Rand, and a few Japanese plants from Spooner & Parkman, were the principal plants besides the above collection. No reports are now published, and we have been unable to obtain a complete list of the prizes.

EXHIBITION OF JAPANESE PLANTS.—Messrs. Veitch & Co. and Mr. Standish recently exhibited these plants, of which the following report is made:—

“In addition to the subjects just alluded to, Mr. Standish had also a nice group of plants, chiefly Japanese, among which were *Retinospora pisifera aurea*, a variegated *Cerasus*, *Eurya latifolia variegata*, a new Privet with round stiff coriaceous leaves; *Thujopsis Keteleeri variegata*, *Microlepia scabra*, and other ferns; *Ilex Fortuni* a variegated variety of the Green Tea plant; a *berberis*, with large handsome foliage; *Juniperus japonica*, a variegated *Eleagnus*, and other plants of great interest.

A somewhat similar but even larger collection of Japanese plants was likewise furnished by Messrs. Veitch, who contrib-

uted among other things, *Abies firma*, *Pinus densiflora*, *Sciadopitys verticillata*, variegated *Thujopsis dolabrata*, *Retinospora obtusa argentea*, *R. lycopodioides*, *Thuja falcata*, *Juniperus rigida*, a variegated *Podocarpus*, the singular dwarf *Thuja pygmaea*, *Abies Alcoquiana*, the new Japanese *Aucuba*, variegated varieties of *Osmanthus*, *Eurya*, *Euonymus* and Cape Jasmine, a gold striped *Carex*, variegated camellia, new variegated *Farfugium* very different from *grande*, *Ficus*, *Privet*, Bamboo, and *Hemerocallis*; together with valuable ferns and other plants lately introduced from Japan by Mr. J. G. Veitch.

Accompanying these were also various specimens of Japanese woods, including a large and beautiful plank of *Planera acuminata*."

NEW CACTI.—We have just now in fine bloom several very beautiful cacti, raised from the very large scarlet kinds impregnated with *crenatus*. Some of them are immensely large and new in color; one, a pale rosy crimson with violet tinge on all the petals; another is deeper and richer than the old *speciosissimus*; and a third is intense deep scarlet ten inches in diameter. We regret that this showy class should have so few admirers, as a well grown collection with hundreds of flowers in bloom is a rich treat, and we hope our amateur cultivators will give them the attention they should receive and which they richly pay.

OUR HARDY HERBACEOUS PLANTS.

BY THE EDITOR.

WE resume the continuation of our list of fine hardy perennial plants, omitted since our March number (p. 138), for want of space.

We have already alluded to the very great ornamental character of the Ranunculaceous plants, in the arrangement and decoration of the flower garden, and the further addition of two plants alone justifies the assertion of a French writer already quoted, as regards the importance of this magnificent natural order.

The *Ranunculus*, that is the *Ranunculus* of the florist, is in reality one of the most exquisitely beautiful and perfect of all flowers, and we can only deeply regret that it is so little known, and so difficult to cultivate successfully in our cli-

13. *RANUNCULUS ACRIS PLENO.*14. *R. ACONITIFOLIUS PLENO.*

mate. It is the gem of the florist, and can be grown in great perfection, though not without great care and attention, as we well know; for three or four years we flowered a bed of them in great luxuriance, and the remembrance of their

beauty—though years gone by—is a perpetual source of gratification, associated as they were with our earliest love of the exquisite symmetry which nature displays in her great works.

RANUNCULUS ACONITIFOLIUS VAR. *PLENO*.

The two species which we now represent in our engraving are very beautiful plants, more particularly the *R. aconitifolius pleno*, (FIG. 14,) little known in our gardens, but familiar to English cultivators as the "Fair Maid of France," a name most fitly chosen in honor of the exiled Huguenots who were so fond of the flowers. It is also known as the White Bachelor's Button.

This species has stout wiry roots, from the crown of which spring the leaves and flowers. The leaves are radical, and deeply cut; the flower stems grow about a foot high, and are covered with a profusion of snow white perfectly double and elegantly formed flowers, which blossom in June.

It is perfectly hardy, and will grow in any good soil, but prefers a half shady situation where the ground is rather moist. In dry ground it fails to grow vigorously and insects often attack the leaves. It also succeeds well in pots, keeping the plants over winter in a cool frame, and carrying them into the house in April, where they bloom profusely. It is a native of the North of Italy and Switzerland. It is propagated by dividing the roots.

RANUNCULUS ACRIS *PLENO*.

This, the double variety of the common *Ranunculus* or Butter Cup, (FIG. 13,) is similar to the last in form but with the brightest golden yellow flowers, styled the Yellow Bachelor's Button by English cultivators.

It is a more robust growing sort than the last, making a great number of root leaves, and throwing up more numerous and taller stems, two feet high, which are covered with its perfectly double and handsomely shaped blossoms. It will grow in any soil or situation, but prefers moisture, where it remains in bloom a longer time. It is the best of the yellow flowered varieties of the *Ranunculus*. It is rapidly increased by dividing the roots in spring or autumn.

General Notices.

HOW TO FORM AN ORANGE GROVE.—There appears something bordering on romance when one talks of an orange grove in England, yet it is quite feasible. One day, ere long, orange groves under glass, giving fruit and flowers and a perfumed promenade, more agreeable than the dusty surface of the ground under a plantation of orange trees in the countries where they are cultivated for their fruit, will be common enough in England, when the method of making one is pointed out. There are two modes of forming a plantation of orange trees under glass: one is simply to keep the temperature in winter from sinking below 30°; this may be done by having, in a large span-roofed house 24 feet wide, two 4-inch hot-water pipes all round the house. In a house of this size, and thus heated, a central path 4 feet wide or more should be formed, and the border on each side planted with Tangerin, St. Michael's, and any other kind of orange that is not too robust and vigorous in its habit. Citrons, lemons, and shaddocks should not be mixed with oranges in planting, but have a portion of the house devoted to them, or they will soon shade the more humble growing kinds. Tangerin, St. Michael's, or other kinds of oranges of moderate growth, may be planted about 5 feet apart, and the borders in which they are planted, if not loamy or clayey, but light and sandy (for the orange likes a stiff soil when growing *au naturel*), should have a dressing of stiff yellowish loam and rotten manure, two-thirds of the former to one of the latter, and 6 inches thick; this should be forked over and mixed with the soil to 18 inches in depth, and you will then have a border in which orange trees will grow freely and bear abundantly.

A large span-roofed house 100 feet long and 24 feet wide would form a grove large enough for a most enjoyable promenade. An amateur living near Clapham, Surrey, has recently built three houses of this size, one of which will most probably be formed into the first orange grove ever seen near London. There is another mode of forming an orange grove under glass, more expensive and more luxurious, by adopting "geothermal culture," and heating the borders as well as the air of the house. A house 24 feet wide under this system would require four 4-inch hot-water pipes under each border (with rubble 4 inches deep over them), placed about 2 feet under the surface; with a path in the centre of the house 5 feet wide, each border may be from 9 to 10 feet wide; the pipes about 2 feet apart; besides these there must be two 4-inch hot-water pipes to heat the air of the house in the ripening season. In a house thus heated those delicious (when first gathered) Maltese blood oranges may be grown, and the Pernambuco and other tropical varieties of the genus *Citrus*. Tangerin and St. Michael's orange trees planted in these warm borders would ripen their fruit very early, and it would be more sugary and rich. There seems, indeed, no end to what can be done by Englishmen with the aid of artificial heat and glass. What a beautiful vineyard under glass could be formed by such heated bor-

ders as I have described above; and how charming "to make a promenade," as our neighbors say, in such a place. The Tangerin orange is an abundant bearer when cultivated under favorable circumstances. A correspondent has recently informed me that a tree in his garden at Alexandria, Egypt, not more than 6 feet high, has often given him a crop of 500 fruit. (*Rivers's Orchard-House.*)

MAGNOLIAS.—I have this week had an opportunity of visiting the famous American Nurseries at Knap Hill, in which there are now many admirable specimens of this magnificent genus finely in flower. *Auriculata* is 45 feet in height, and the width of its branches is 35 feet. The stem near the ground is 10 feet in circumference; it divides into eight limbs, some of which are 3 feet in circumference. This is a noble specimen, its large pale green fine textured, and peculiarly shaped foliage lobed and lengthened to the point; and supplemented, too, as the young shoots now are, with large milkish white agreeably odored flowers, produces a fine effect on the landscape, contrasting well with the rare and unique specimens of fine trees in its immediate locality, and all about is carpeted with the choicest kinds of azaleas and rhododendrons, whose flowers of all hues are now of the most enlivening and glorious character. *Tripetala* is 30 feet in height, and the circumference of its branches is 60 feet—its immense pale green new born foliage has now a noble appearance, and its large white flaccid-petaled flowers, produced from the extremities of last year's shoots, have, as Loudon describes them, a languid and luxurious effect. *Gracilis*: there are some standards of this species which have a very nice effect, 9 feet in height, abundant in flowers, which are of a somewhat smaller character than its prototype, the *purpurea*; its leaves too are considerably narrower. *Glaucia* and *glaucia sempervirens*, of which there are many fine specimens 16 feet in height, on clear stems more than 11 inches in diameter, and having nicely formed heads, are now covered with ample foliage and embryo flowers, which will continue to expand during the summer and autumn months. *Acuminata* in many noble specimens 30 feet in height, on straight stems 10 inches in diameter, and having the spread of their branches fully 60 feet in circumference, which are now covered with superb foliage and beautiful flowers. Loudon states that "the plants are in some nurseries grown in the free soil, but it is always preferable to raise them in pots; because in that case they are not checked by transplanting, and at least a year is gained in their growth." Here I believe a very different system prevails, and there are many of these large trees fully 20 feet in height, that would move with perfect safety, from the constant practice of moving and root pruning that is constantly applied to almost every plant for sale in these extended grounds, with the best effects, as can be readily seen in the splendid exhibition of American plants which now graces the garden of the Royal Horticultural Society at South Kensington. Conspicuous *Soulangeana* still retains some lingering blossoms, whilst those on the parent plant had perished many weeks since from the baneful influence of spring frosts.—(*Gard. Chron.*)

Massachusetts Horticultural Society.

Saturday, May 3, 1862.—An adjourned meeting of the Society was held to-day,—the President in the Chair.

No business of importance was transacted.

C. M. Atkinson, W. H. Harrington, and James Falconer were elected members.

Adjourned one month, to June 7.

May 31.—The opening exhibition of the year took place to-day. The show was extremely limited, the only collection of plants being sent by Hovey & Co., who had a miscellaneous lot of greenhouse plants, comprising *Rhopala corcovadensis*, *Aralia reticulata*, *Yucca aloifolia variegata*, the Cavendish Heath, *Statice Halfordi*, *Tetratheca verticillata*; azaleas, *Thyracanthus*, and others, which were awarded the prize; also, pelargoniums, *L'avenir*, *Viola*, *Mad. Pescatore*, *Napoleon III.*, *Una*, and *Ariel*, and six fancy sorts, all in fine condition; six heaths, and six azaleas; among them a superb specimen of *crispiflora*, one mass of bloom; a small plant of *Model*, a beautiful new variety, well worthy of extensive culture.

E. S. Rand, Esq., had a well bloomed specimen of *Medinilla magnifica*, and *Alocasia metallica*. I. Sargent, Esq., an immense specimen of *Azalea decora*, one sheet of bloom. Spooner & Parkman had *Thujiopsis dolabrata variegata* and the golden variegated *Euonymus*.

Cut flowers were shown in considerable quantities, and in very good condition. As a whole the show was the smallest for some years.

PRIZES WERE AWARDED AS FOLLOWS:

AZALEAS.—For the best, to Hovey & Co., \$6.

PELARGONIUMS.—For the best, to Hovey & Co., \$8.

For the best Fancy, to Hovey & Co., \$8.

HEATHS.—For the best, to Hovey & Co., \$6.

GREENHOUSE PLANTS.—For the best 12, to Hovey Co., \$8.

SPECIMEN PLANT.—For the best, to E. S. Rand, \$6.

For the second best, to E. S. Rand, \$5.

CUT FLOWERS.—For the best, to Hovey & Co., \$6.

For the next, to Spooner & Co., \$4.

For the next to J. Nugent, \$2.

GRATUITIES.—To I. Sargent, Esq., for *Azalea Decora*, \$5.

To the President of the Society, for cut flowers, \$5.

To Hon. M. P. Wilder, for a collection of tree peonies, \$2.

To Hovey & Co., for pot plants, \$4.

To E. S. Rand, Esq., for collection, \$1.

To E. A. Story, for cut flowers, \$2.

To D. Murray, for native flowers, \$2.

To Walker & Co., for tulips, \$1.

To Anna C. Kenrick, for basket of flowers, \$1.

Horticultural Operations

FOR JULY.

FRUIT DEPARTMENT.

The month of June has been cool with continued showers and heavy rain, saturating the ground after the dry spring. Trees of all kinds present an unusually vigorous and healthy aspect.

GRAPE VINES in the early houses will be nearly or quite ripe, and will need little attention other than that already advised. Late vineries will now be swelling their fruit rapidly and will begin to color by the middle of the month. Attend to the temperature of the house and continue watering freely for some days; air freely in fine weather, and stop all laterals in due season. Vines in cold houses will be coming on slowly in consequence of the late cool and wet weather; look out for mildew and check it in season with sulphur water; continue to thin the berries and stop the laterals as they need it; air freely, but close up early on cool nights. Vines in the open air should be summer pruned, laying in the bearing wood for next year, and cutting away all weak shoots.

STRAWBERRIES intended to be kept on the same spot of ground should be attended to immediately. Manure heavily and dig in the old plants on each side of the old row, so that the young runners may cover the ground; or if kept in hills or small rows go over them and cut off all new runners and all the old and half-decaying foliage; then manure freely and dig the ground. Young plantations made in May or June should be kept clean of weeds by frequent hoeing, until the plants begin to run freely, when they should be laid in carefully and covered with a little soil.

SUMMER PRUNING should be continued according to the vigor and growth of the trees.

THINNING THE FRUIT is an important matter when fine specimens are wanted; go over and take off every ill-formed or wormy specimen.

FRUIT TREES in pots will require attention; water liberally, unless the fruit is ripening, using liquid manure occasionally.

ORCHARD HOUSES will need thorough ventilation at this season of the year, if the trees are not removed to the open air. Guard against the increase of insects which are generally very troublesome in warm weather.

MANURE, MULCH, AND WATER fruit trees bearing heavy crops.

FLOWER DEPARTMENT.

All the plants should now be cleared from the house, if not already done, except such as are intended for in-door decoration. These, whatever the kinds, should have good attention and grown so as to form ornamental objects. Attend soon to the preparation of winter-blooming plants, which will need heading in, repotting, &c.

CAMELLIAS should be shaded slightly for a time after removal to the open air, to prevent scorching of the foliage. Water carefully and syringe freely. Inarching may be done now and plants that require it repotted.

AZALEAS should have especial attention. Water freely, and syringe often, encouraging a free growth this month, and stop all over vigorous shoots. Now is the time to propagate a young stock, either by grafting or by cuttings. Repot such as require it.

HEATHS should be looked after; pinch in the young shoots so as to secure stocky plants; repot such as require it.

CINERARIAS should now be propagated by cuttings or division of the roots. Protect the young plants till well established. Sow seeds for a winter stock.

CALCEOLARIA seeds may be sown this month.

PELARGONIUMS should now be headed in, and cuttings put in for a young stock. Keep the plants rather dry till they begin to break.

CHRYSANTHEMUMS should be repotted and the shoots nipped off to form bushy plants.

FUCHSIAS may be repotted.

HELIOTROPES for winter blooming should be repotted.

VERBENAS for the same purpose should be repotted.

OXALIS HIRTA should be potted.

CHINESE PRIMROSES should now be propagated for a young stock. Sow seed of the single kinds, and repot those already well advanced.

ROSES should be repotted and plunged out in the open ground.

MIGNONETTE seeds may be planted the last of the month.

CYCLAMENS should be planted out in a shady border if not already done.

VALLOTA PURPUREA should be repotted and plunged in the border.

BEGONIAS should have a shift into larger pots.

CALADIUMS should be repotted.

MONTHLY CARNATIONS should be repotted or planted out in the open ground.

CALLAS should be allowed to rest for a month or so turning the pots on their sides.

ORANGE TREES should have attention; repot or top dress such as need it.

WINTER FLOWERING PLANTS of all kinds should be pruned in, top dressed, or repotted, and the vigorous growing sorts plunged in the open border.

FLOWER GARDEN AND SHRUBBERY.

The garden should now be in its best array. Every weed should be destroyed, and all the young plants neatly tied up to stakes. The lawn, from the continued wet weather will require frequent rolling and cutting, and the walks should be clean and well rolled. Prune in all ill shaped shrubs, and keep the climbing plants neatly tied up.

TULIPS and other spring bulbs should be taken up at once and their places filled with a reserve stock of asters, verbenas, or other plants.

DAHLIAS should be tied up carefully to the stakes.

ROSES. The Hybrid Perpetuals should now be pruned back short to induce a free autumnal bloom.

ASTERS may now be planted out if not already done.

CARNATIONS AND PICOTEEs now blooming should be tied up to neat stakes. **PINKS** may be propagated from cuttings.

THE PÆONIES.

NEXT in prominence after the Rhododendrons and Roses come the Pæonies, both tree and herbaceous, which unitedly keep up a grand display for six weeks, the former beginning to bloom in May, and the latter following, to the end of June. We have, in previous volumes, said so much in praise of these flowers, that it may appear superfluous to allude to them again; but, with the magnificent show of our own collection, and the well-known fact that the former varieties are yet strangers to most gardens, we cannot forego the opportunity to again urge their claims upon all lovers of splendid flowers; at the same time it is a source of pleasure to introduce to their notice several superb new varieties, additional to the large number we have already described in our pages.

By what process have the French cultivators achieved such marvellous results? Look at that old and once favorite flower, the Double White (Whitleyi); scan its form, measure its breadth, survey its outline; double, and even large as it is, it possesses no striking quality. Yet; out of this have been produced *festiva* and *festiva maxima*, the first exquisite in form and coloring; the last, monstrous in size, and magnificent in aspect, measuring *one foot in diameter*, tall in stature and robust in growth. Hybridization has, undoubtedly, been the means by which so much has been accomplished; but it is, nevertheless, wonderful; and the amateur cultivator cannot compare them, or any of the newer and superb varieties, with the older sorts, without an inward feeling of wonder at the change, and an involuntary expression of thanks to the skilful men who have labored so patiently and assiduously in the development of such remarkable and beautiful varieties.

The tree pæonies are little less remarkable than the herbaceous. Variety they do not yet possess, like the latter; but this will come in the end. For a long period after the introduction of the tree pæony great exertions were made, both by individuals and the London Horticultural Society, to intro-

duce the varieties which it was said they possessed in China; drawings executed in Canton, and in the Library of the East India Company, representing a fine double purple flower, and a double yellow flower. Though Mr. Sabine, in his very complete account of the tree pæony, in the Transactions of the Society (Vol. VI.,) placed no reliance on the statement of the great number, and of the very different colors, of the varieties represented to exist by the authors who had described them, (*Memoires sur les Chinois*,) yet, as late as 1848, Mr. Fortune, in his explorations of that country, was particularly charged to search out these fabulous sorts; and he sent home a very great number of kinds, which flowered in the garden of the London Horticultural Society; but though distinct and handsome there was neither a double purple or double yellow, and these are yet to be added to our collections. We certainly do not doubt they may have a double purple, as we possess a single one of that deep color, but the yellow we discredit as did Mr. Sabine.

Up to 1826 only the old Banksiæ and papaveracea had been introduced to Europe, but since then the French and Belgian cultivators have raised thousands of seedlings, and the catalogues now contain upwards of a hundred fine sorts. Many of the recent varieties are not only new in color, but very large, of which Elizabetha is an example. As they may be hybridized with the herbaceous sorts, there can be no doubt a few years will bring us magnificent, deep colored flowers, which will give enhanced value to this already highly prized tribe.

But, notwithstanding the general impression, among most amateurs in regard to the beauty of the tree or Moutan pæony, for garden effect, they are surpassed by the herbaceous kinds. As single specimens, on the lawn, or introduced into the shrubbery, they are grand objects at all times. But in the border they appear out of place. The flowers of the latter are displayed in such masses above the ample foliage, continue in flower so much longer, and occupy so much less room, that they are far more effective and beautiful. Planted in masses, with a good arrangement of colors, they make a gorgeous display. Our large plantation, covering fifty feet square of

ground, and containing a hundred varieties, formed a magnificent *coup d'œil*, not surpassed, if equalled by any other flower. As single specimens, in the border, among other flowers not yet in their season of bloom,—for the pæonies come before most herbaceous plants, and almost as soon as the bedding plants are out,—they tower up in grand array, the white varieties forming avalanches of snow, while the dark colors glow with the purple hues of an October sunset.

The first improver of the herbaceous pæonies to any extent, was M. Guerin of Paris; but other cultivators soon followed, and with the happiest results. M. Parmentier's whole life was devoted to the improvement of this flower, and so much did he prize them that for many years he refused to part with a single specimen. Most of his productions were the very deep colored varieties, previously unknown, except in the imported semi-double variety, called Pottsii. One of the last, and most successful growers, is Dr. Calot, who has raised several superb seedlings, quite new and distinct, as will be seen by our descriptions of the flowers. The still newer varieties, not yet introduced, appear, from their description, to be very remarkable, as no doubt many of them are, for there is no reason why the colors should not be as varied as the rose or dahlia, while in size and form, they already seem to have come up to a standard of the highest excellence, though they may possibly be improved.

English cultivators do not appear to appreciate the magnificence of the pæony, and we do not now recollect a single variety, either of the tree or herbaceous kinds, of any particular merit, raised by them. Yet who, if left to choose between the two, the pæony and hollyhock, to the latter of which they have devoted so much time, would not give their preference to the former, which requires little or no care, is perfectly hardy, will grow everywhere, and is the flower for the million.

So showy and beautiful are the pæonies that we must urge their great claims upon the attention of all lovers of superb flowers; we are sure they will add more to an effective display of the flower border than any other plant, and while the immense size of some of the varieties, the deep tints of others, and the delicate pencillings of many, will bear the closest in

spection, the profusion of the bloom cannot fail to render the garden doubly attractive throughout the whole month of June, losing nothing, even aside of the roses, when viewed in regard to color, size, and, we had almost said, in fragrance, for several of the varieties have a strong and pleasant odor.

Having described, in our previous volumes, upwards of fifty varieties, and some of them having now become more abundant, and to be obtained at moderate prices, we offer the following as a selection of a dozen kinds for a small collection. When a larger number are wanted the selection may readily be made from the descriptive list :—

WHITE.—Festiva, and Festiva maxima.

BLUSH.—Grandiflora carnea plena, Mad. Breon.

YELLOWISH.—Sulphurea and flavescens.

ROSE.—Ne plus ultra, Edulis superba.

CRIMSON.—Reine des Francais, plenissima rosea superba.

• VIOLET.—Fulgida, Violacea.

October is the best season to transplant pæonies. If set out at that time they will generally flower the first year, and will make much stronger growth for flowering the year following.

We annex the names and descriptions of twenty of the newest varieties, beginning our enumeration where we closed in a previous volume, (XXIV., p. 489) :—

54. ALEXANDER VERSCHAFFELT, (*Parmentier*).—Flowers large, globular; outer petals large; the centre well filled, forming a compact, beautiful flower, the edges of the petals being slightly rumpled; color carmine, shading off to light pink towards the edges. Height about 2½ feet.

55. BOSSUET.—Flowers large; outer petals medium size; centre very full; color rich violet rose. Height 2½ feet.

56. CLARISSE, (*Calot*).—Flowers large and full; outer petals large, soft rose; those in the centre nearly erect, of the same color, shaded with salmon at the ends. Height 3 feet.

57. COMTESSE DE MORNAY.—Flowers large, globular; outer petals large; full to the centre, of fine form; color clear rose. Height 2½ feet.

58. CAMILLE CALOT, (*Calot*).—Flowers large and full;

outer petals large; those of centre erect; color clear deep rose. Height $2\frac{1}{2}$ feet.

59. DUGESCLIN, (*Calot*).—Flowers large, globular, and eupped; petals regular, from the circumference to the centre, of beautiful form; color beautiful rosy lilac. Height 3 feet. A superb variety.

60. ETENDARD DU GRAND HOMME, (*Calot*).—Flowers very large; outer petals large and long; centre petals slightly irregular; color violet amaranth. Height $2\frac{1}{2}$ feet. A superb flower.

61. FAUST, (*Calot*).—Flowers large and full; outer petals large, pale lilac; centre petals large, tinged with chamois, and often tinted with pale rose in the middle; stigmas carmine. Height $2\frac{1}{2}$ feet.

62. FIDELINE, (*Calot*).—Flowers large; fine form; petals uniformly large; color bright rosy violet, lighter at the edges. Height 2 to $2\frac{1}{2}$ feet. Very fine.

63. GEN. CAIVAGNAC.—Flowers large; outer petals large, rose; centre petals smaller, of a deep pink. Height $2\frac{1}{2}$ feet.

64. L'EBLOUISSANTE, (*Parmentier*).—Flowers large, globular, of beautiful form; petals large, from the circumference to the centre; color rich glowing violet. Height 3 feet. Superb.

65. LOUIS PARMENTIER.—Flowers large, full and fine form; petals large; color delicate pale blush. Height $2\frac{1}{2}$ feet.

66. MAGNIFICA, (*Calot*).—Flowers large and globular; outer petals large, pale blush; those of the centre, erect, yellowish white; stigmas carmine. Height 3 feet.

67. MADAME CALOT, (*Calot*).—Flowers very large and globular; outer petals large, white, slightly shaded with lilac, those of the centre yellowish. Height 3 feet. Superb.

68. MADAME VILMORIN.—Flowers large, full and handsome form; petals large; color beautiful bright rose. Height $2\frac{1}{2}$ feet.

69. NOEMIE, (*Calot*).—Flowers large and globular; outer petals large; centre full; color soft, pale flesh. Height 3 feet. Beautiful.

70. PRINCE PIERRE TROUBETSKOY.—Flowers very large,

globular; petals large, and regular to the centre; color bright violet, paler on the edges. Height $2\frac{1}{2}$ feet. Very fine.

71. SYDONIE, (*Calot*).—Flowers large and full, fine form; outer petals large; those of the centre erect, soft rose, the extremity of some of the middle petals shaded with salmon. Height $2\frac{1}{2}$ feet. Beautiful.

72. VICTOR LEMAN, (*Calot*).—Flowers large and handsome form; outer petals large, pale lilac; centre full, yellowish, and tipped with carmine. Height 3 feet. Superb.

HALF HOURS WITH OLD AUTHORS.

BY WILSON FLAGG.

“A GENERAL TREATISE OF HUSBANDRY AND GARDENING, &c.”

By R. Bradley, Professor of Botany in the University of Cambridge, (Eng.) London, 1726.

THIS Treatise embraces almost every topic connected with agriculture and gardening, and contains nearly all the general information that was known to agriculturists at the time of the publication. The author says that, although English husbandmen are allowed by all nations to have a superior genius for agriculture, yet it is rare to find one of them who ever attempts any new discovery, or that can give any other reason for what they do, than that their fathers did the same before them. This is the old complaint, I would remark, which has always been brought against farmers, and is still urged against them by modern speakers and writers. But I would say in their defence, that no better reason could be given by a farmer for his practice than the example of his father, whose practice had been successful. This appeal to experience is always reasonable, and those who are governed by example rather than precept are the most successful farmers. Experimental farmers are very useful men to the public, but their experiments are generally ruinous to their own success. The prudent man of practice watches his theoretical neighbors, and profits by such of his experiments as

have been successful. The tenacity with which our farmers in general cling to old ways and practices is imputable not to their ignorance but to their common sense.

In old books we must expect to find old notions; and among others I find in this treatise a whole letter devoted to explaining the truth of the notion that a swell of land cannot produce more vegetation than the area of its base, though the former may measure half as much more than the latter on its surface. The author proceeds thus to explain his position: "A hill, I suppose, may contain four equal sides, which meet in a point at the top; but the contents of these four sides can produce no more, either of grain or trees, than the plain ground upon which the hill stands, or has its base; and yet by the measure of the sides we find twice the number of acres, roods and poles, which we can measure in the base or ground plat." In order to prove this the author gives a diagram, in which parallel perpendicular lines are drawn from a horizontal line representing the base of a hill through the curve line that represents the surface of the hill. By this diagram we perceive that it would require no more palings to build a fence over the hill than to build one straight across a space equaling the width of the base of the hill.

I am inclined to believe, however, that, in spite of this mathematical reasoning, there is not a farmer in any country, who would not prefer the products of the hill to those of a plain, of similar soil, equalling the area of its base, if each was fully stocked, either with timber or hay. And if it were required to cover the former with sods taken from the latter, any one who should observe the process, would find the falsity of the author's assumption clearly demonstrated. Nothing is more common in the world than such a variance as this between theory and practice, or between mathematics and common sense. The author's reasoning is based on the supposition that all plants have an erect manner of growth, which is true only of certain parts of plants, as of the stem; other parts having a vertical tendency, but spreading out also horizontally in proportion to their exposure to the sun and air.

"The supposition," remarks St. Pierre, "that plants rise

in a perpendicular line, and that to this direction, they are determined by the action of columns of air, is equally contrary to truth. Some, it must be allowed, follow this direction, as the fir, the stalk of corn and the reed. But a much greater number deviate from it, such as creeping plants, for instance, of every species, vines, &c. Others ascend vertically, and having arrived at a certain height, in an air perfectly unobstructed, fork off in various tiers, and send out their branches horizontally, like the apple tree; or incline them towards the earth, as the firs; or hollow them in the form of a cup, like the sassafras; or round them into a mushroom shape, like the pine; or straighten them into a pyramid, like the poplar; or roll them, as wool on the distaff, like the cypress; or suffer them to float at the discretion of the winds, like the birch. All these attitudes may be seen under the same bearing of the wind. Nay, there are some that assume forms to which all the art of the gardener could hardly subject them. Such is the badamier of the Indies, which grows in the form of a pyramid, and is divided into stories, like the king of the chessboard. There are plants uncommonly vigorous, which, so far from pursuing a vertical line, recede from it the very moment they get above ground. Such is the false potato of India, which in hot countries, loves to crawl along the sand of the shores, covering whole acres in its progress.

“We should never have done, were we to run over ever so hastily, the different parts of vegetables; what has been said is sufficient to evince that there is not a single one whose direction is determined by the vertical column of the air. The mistake was occasioned by supposing that plants would naturally seek the greatest volume of air; and this error in physics has produced another in geometry; for on this supposition, they must all crowd toward the horizon, because there the column of air is much more considerable than in the zenith. We must in like manner reject the consequences which have been deduced from this idea, and laid down indeed as principles of jurisprudence, for the division of lands in our boasted mathematical treatises; such, for instance, as the following:—*that no more wood or grass can grow on the*

declivities of a mountain, than what would grow on the area of its base. There is not a woodcutter nor haymaker in the world, who could not demonstrate, from his own experience, the contrary of this maxim."

From the "Seventy-Six Observations," concerning the management of fruit trees, in Bradley's Treatise, I will make a selection and abstract of what seems to be most original and valuable. Trees, he remarks, *should be pruned but once in a year*, which is contrary to the general practice; for he thinks there are too many people, who are never without their knife in their hand. This continual pruning makes a tree shoot into false wood, and miscarry its buds designed for fruit; it interrupts the free passage of the sap to such buds by diverting it to support the wounded parts of the tree.

When a tree is in good order, he advises not to prune it too close, or take too much wood from inside, as some are too apt to do, leaving a dwarf naked within. It is, however, necessary to allow a circulation of air between the shoots that come from the middle, in proper places, for the better admittance of the sun to ripen the fruit; and in this case we may allow the shoots of a dwarf tree more air in a strong wet ground, than in a light sandy ground, which by its natural warmth gives color and taste to those fruits, which, in wet, cold ground, would be insipid, and good for nothing.

Another observation is, that winter fruits should have their shoots left wider asunder than summer fruits; the latter not wanting the sun as others do, may, therefore, be left pretty full of wood. We may further remark, that such trees as have made weak shoots may be pruned very early in the spring; for pruning draws the sap; but those trees which are very vigorous should be pruned late in the season, as they will thereby be made to bring less wood and more fruit.

He advises us to consider the climate where we live, that we may direct our practice according to the degree of cold or heat. In hot countries the fruit must be gathered sooner than in colder climates, because the sap performs its work sooner. With the author it was a constant rule, that the longer the fruit can draw the sap, the longer it will last; and

it is the same in nature, when we speak of pruning of a plant or the culture of trees, which we would forward or retard. We should gather a fruit after a frost, for this checks the sap so that it is no longer profitable to the fruit.

In hot dry years, if the season is hot in August and September, our fruits should be gathered about the beginning of October, rather than leave them upon the tree till the end of the month—for such fruit as has had a large share of ripening upon the tree lasts but little while, as it is very subject to rot. But if August and September be wet and cold, then let the fruit hang upon the trees till the end of October, and it will keep well. This Mr. Bradley accounts one of the most material observations relating to fruit, though few gardeners, he says, make any account of it.

When a tree is set full of fruit, and we wish to save what is fair and good, rather than the whole quantity, we may, with a pair of sharp scissors, cut off those which are the least promising, about the middle of their stalks; this will prevent the weeping or loss of their sap. And if the tree in its first or second sap tends to shoot an abundance of false wood, it must be *pinched off* while it is tender, but never *cut* while the sap is flowing; for by cutting the tree then it would run into wood, and the blossom buds which the second sap would fill, would thereby be made abortive. The blossom buds, he remarks, *are formed by the first sap*, viz., between April and June, *and are filled by the second sap*, between July and the beginning of October, for opening and bearing the following year.

It is an opinion still prevailing among some people, that if trees are weak, they must be pruned in the increase of the moon, to make them give us stronger wood; and when they are very strong, they must be cut in the time of the moon's decrease, to make them bring abundance of fruit and less wood; but the author advises every one to use his own judgment in this case. We find that some trees are more apt to shoot into unproductive wood than others; when we meet with such strong shooting trees, we must prune so as to leave the shoots long, and according to their strength let their shoots remain longer or shorter; but those shoots which have

blossom buds upon them in any great quantity must be shortened, that the remaining buds may nourish their fruit the better, and the tree make good wood.

Mr. Bradley considers it necessary, in the first or second year after the tree is planted, to prune very short to make it shoot or fling into wood; and if in the succeeding years it does not happen to come into a bearing way, but still keeps shooting strong and unprofitable branches, as is common with the *Rousselet*, the *Bergamotte* and some others; then, if we prune at all, leave every shoot very long; or rather, leave such trees without pruning. In that case the tree will certainly set to bearing, and the sap will not spend itself to no purpose; but when those long branches are knotted with blossom buds, we may break off a convenient number of them, according to the strength of such branches. Of all the sorts of pears there is none which will bear pruning so short as the Winter *Bon Chretien*; for then it will give large wood, and upon that we may expect large fruit.

In pruning trees, as well as in gathering their fruit, we must have regard to the soil and climate; if it be wet and cold, the fruit is green and paler in its color, and not so well flavored. In this case the shoots of a tree must be pruned free and open, that the rays of the sun may pass freely between them. But in light sandy grounds, where fruit is always good, though it is smaller than in strong lands, the pruning must be very different. It should be very little, or none at all, in pear trees; for in very hot dry land, the wounds made by pruning recover with difficulty, and in the driest lands, the author has known pear trees to perish entirely by over-pruning.

Every curious person in fruit should always keep by him a good number of free stocks, for replenishing his plantation; but such a nursery should be raised from kernels. The suckers taken from about the roots of trees are good for nothing. We should likewise provide a nursery of quince stocks; which are best raised from that sort of quince whose wood is brownest, the leaves large and round, and velveted on the back. This kind brings the strongest plants, contrary to that which is called the male quince, which one may easily distin-

guish in the nursery, by its languishing appearance and small shoots. Its sap is always more sour than the others; and if one was to graft upon such plants, the grafts are not likely to hold. The best way is to pull them up and plant others in their place.

In dry sandy ground plant trees in autumn, and in moist watery places plant in the spring; for else the water, lying about their roots all the winter, would chill and destroy them, especially such as make tender wood, as plums, cherries, and peaches. The pear and apple are more hardy in their wood, but yet more subject to be destroyed by water.

Graft those pears which have a *Beurée*, or melting flesh, upon quince stocks; but seldom or never use a quince stock for pears with a dry flesh; for the juice of the quince which is harsh, dry and rough, adds to the dryness of those fruits grafted upon it. But the share of dryness which the grafts of melting pears can take from the quince stock helps the fruit in its keeping; for all fruits which are grafted are influenced in some measure by the juices of the stock they are grafted upon. Of quince stocks, the Portugal quince is the best for pears.

CORDON TRAINING OF FRUIT TREES,

ADAPTED TO THE ORCHARD-HOUSE AND OPEN-AIR CULTURE.

BY REV. T. COLLINGS BREHAUT.

REMARKS ON THE DIMENSIONS, ETC., SUITABLE FOR ORCHARD-HOUSES.

ALTHOUGH a number of these interesting structures are now in full work, and are becoming more known daily, as may be seen from the number of inquiries made respecting my own, and those of others, perhaps a few remarks on their dimensions and form may not be out of place. A lean-to orchard-house, thirty feet long, should be thirteen feet wide. If the back wall be twelve feet high, that is ample; and the front should be about four or five feet high, but not more. Shutters

from twelve to fifteen inches in width all along the front, which is conveniently made of half-inch boards, and about half of the same quantity of ventilation at the back, are required. Glass ventilators, swinging on pivots, instead of wooden ones, are more expensive, but where this is of no consequence, much preferable. Such a house need not cost thirty pounds.

A lean-to house, 100 feet long or more, with walls fifteen feet high, and eighteen or twenty feet wide, would be magnificent, and have a double walk—one near the wall trees, and one near the front row. In the smaller lean-to, which is only thirteen feet wide, one walk only is permissible, and that may be where you please; but near the wall trees is best, as it gives more head-room, and enables you to attend to the wall trees better. To do this, a small ladder six feet high, and exactly twelve inches in breadth, (in order to slip between the spurs,) is requisite.

A small span-roofed house should be fourteen feet wide, five feet high at the sides, and nine feet high to the ridge. One centre walk leads between two rows of potted trees on either hand, the smaller trees, of course, nearest to the sides.

A house thirty feet by fourteen costs about thirty pounds. Larger houses are twenty feet wide, sides about five feet high, height to the ridge about ten feet; the paths, two in number, must be two and a half feet wide. The trees are placed on raised beds, bricked in: these beds, at the sides, should be four feet wide and fifteen inches high; but in the central bed, (there are three beds in all,) somewhat higher and one-third broader. Here can be grown fine pyramidal apricots and plums; pears of choice kinds, and cherries, &c.

One of Mr. Rivers's last and best is 100 feet long by 24, and twelve feet high in the centre by five and a quarter feet at the sides. It is glazed at either end, and the roof is supported by seven light iron pillars, the rafters being light. There is a central border, and two paths, but none of the borders are raised, which I prefer.

These large houses should stand endwise N. E. and S. W.; for if placed N. W. and S. E. some parts are in shade. Nothing

can well be finer than these large span-roofed houses; they are most ornamental and productive.*

NAMES OF SOME VARIETIES RECOMMENDED FOR IN-DOOR AND
OUT-DOOR CULTURE.

In the orchard-house, the Red Masculine (Abricot précoce) is a small round-shaped apricot, pale, and musky in flavor. It ripens about the beginning of July, or even earlier in hot seasons. The Large Early (Gros précoce d'Esperen) follows it. It is larger, but not richer in flavor. I have some new varieties from Lombardy, one in particular, large and very early, is far superior to either of these. Then comes the valuable Kaisha, the Syrian importation, which is a most valuable variety—small, but well flavored—sugary, and it is also prolific. Then the Moorpark, a week later, takes you into the middle of August. The Apricot peach closes the list of really useful sorts, though you may add many more, as Beaugé, a capital late variety of the Apricot peach; and if an early sort be required, there are the Musch or the Viard to choose between.

Peaches for the Orchard-house.—Here the variety is large, but in reality only a certain number need be cultivated. In countries where the peach bears tolerably out of doors, then the *very early* and the *very late* sorts should be selected, although, as was truly said to me the other day, "If you have magnificent Royal George peaches out of doors, you may have the same sort a fortnight earlier in the house, and so the whole crop will not ripen at one time."

Now, this is a real advantage, as every peach-grower knows, for I have literally found them fall by scores from my trees during the night, and been obliged to let them perish, they were so bruised and so common. Nets, in this case, should be spread 18 inches above the ground to catch them.

* These are very suitable dimensions for orchard-houses. In our climate, we should, as a rule, recommend span-roofs, as they are more easily ventilated, and are not so hot as lean-to houses. As we have so much more sunlight than they have in Great Britain, a position running anywhere between north and south and east and west will do, according to the convenience or position of the garden or grounds.—Ed.

But this is ridiculous cultivation, and similar to that in the west of Canada, where, in the peach orchards, the pigs devour the greater part of the fruit beneath the standard trees. So, our object should rather be—"not so much, but better."

In the orchard-house, then, the first fruit is the Red Nutmeg, (*Avant Pêche rouge*,) which is a singularly small peach, ripe in July. Then the Early York, an American novelty, is highly spoken of—Mr. Rivers considers it excellent. Then the Acton Scott, an intermarriage between Noblesse and Red Nutmeg. Such are the absurd names given to these fruits. But Acton Scott is useful for early exhibitions; and though a pale, medium-sized peach, will probably yet hold its ground.

The Petite Mignonne comes next, a capital variety, and to connoisseurs, the best early peach. It is rare, however, and is succeeded by the Old Grosse Mignonne, which every one speaks so much of; but I cannot say much for it, as it is every one's duty to speak the truth; and then the mid-season peaches. Noblesse is a well-known kind to the visitors of Covent Garden. Choose the Sulhampstead variety of this, it being *by far* the best, and the hardiest for the open wall, and also forces well. Then the Reine des Vergers, a very good peach (mine ripened early in August this year); then Royal George and Red Magdalen—two old friends found in every old garden.

After these come the Malta, that excellent peach. Noisette, no mean judge calls it "his favorite;" and mine this year, even the smallest, were nine inches in circumference. Besides, the Malta peach will hang on the tree without falling, an excellent quality in any fruit. It will also be the best to send to your friends at a distance, because it bears carriage the best of any.

Then you may have the Chancellor peach; Rivers and Leroy of Angers call it "excellent," though MacEwen calls it "ugly." It is a long, almond-shaped peach—rather bitter, but otherwise curious, and good. Mine this year were very fine. Then Barrington; then Bourdine, all September peaches, but in the orchard-house rather earlier; then Walburton Admirable, that noble kind, and Desse Tardive—a

most beautiful, yellow-colored, large variety. I have Belle-gardé, (Noire de Montreuil,) which the French rave about. It is excellent, but not first-rate under glass, nor Belle Bauce.

Belle de Vitry ripened in September. It is a staple of the Montreuil gardens for the Paris market with Bellegarde,—and I prefer it,—but the tree is very vigorous, and may exceed your powers to keep it under. Mr. Rivers does not notice it in his catalogue, and you can do without it. Then there are the Pavie or clingstone peaches; of which I can only say, that they who make trial of them will discover something worth their labor. My own this year are very fine; but I cannot retard them as I hoped. Pavie de Tonneux, “fruit magnifique,” (as Leroy says,) ripens a month earlier than was desirable; but is a noble peach.

Many others the amateur will see in catalogues, and will, in time, choose for himself. For the present, I content myself with stating what I have found very good. I must not omit, however, Pourprée Hâtive. If you can get it true it is of a most vinous flavor, and Admirable Jaune, a capital peach—yellow—and common at Angers in September. I have three trees of this kind, one full of fruit, but not yet gathered. Also Monstrueuse de Doué was very fine indeed from the wall. Tardive d’Espagne, a late pointed peach, is as yet far from ripe, and I have great hopes it will not ripen till late in October. All my desires have been to *prolong* the peach season. I found the orchard-house hastens them too much, and a late peach, truly good, is yet a variety to be desired everywhere. One that should be ripe in November, say by the fifth, and yet require no sugar to eat with it, has not yet been found.*

Nectarines for the Orchard-house.—Here I enter into the best part of the subject, according to my own ideas,—a ripe nectarine being, as I think, the finest of all fruits, and far

* The American cultivator need not be guided by Mr. Bréhaüt’s advice in the selection of varieties, as our American sorts are, with a few exceptions, better than the English and French peaches. The Early York has proved with Mr. Rivers one of the best, and such sorts as Early and Late Crawford, Bergen’s Yellow, George IV., Coolidge’s Favorite, White Ball, and many others, are not only magnificent in size and appearance, but appear better adapted to pot culture than many of the old English and French peaches.—ED.

superior to a peach. As to growing nectarines in the open air, it is simply ridiculous, and only answers in extraordinary seasons. In the house, Fairchild's Early is a small but early variety; then Hunt's Tawny, a distinct, yellow nectarine, of not too much flavor, but excellent nevertheless. Then follows rapidly in August, Elruge, (*Ceil-rouge*?) a very old sort, as old as Charles II.'s time. It is most useful for exhibiting, as any list proves, and capital for forcing; but only of medium size.

Violette Hâtive is a very superior variety, excellent for exhibition, only medium size, but prolific and good. Pitmaston too is well known. These three are first-rate. Hardwick Seedling, hardy, firm flesh, a great favorite of mine; then the Murrey, medium size, immense stone, very racy flavor; the Duc du Telliers, a large prolific kind, very good indeed. The Downton, large and showy, but not so aromatic as the Murrey. The Late Melting, a good late sort for exhibitors. The White is also earlier than some of these, and the Newington race are all good. The Red Roman is immense, but difficult to soften, and the Stanwick is the best of all. It, however, cracks very much; nevertheless it is very sweet, and the kernel has really no bitter taste, as reported. Mine this year are very fine and numerous, and I think with care they might be grown without fire heat; otherwise this is the chief of nectarines in every way. It is of Syrian extraction; and comes, I think, from our consul there.

Plums for the Orchard-house.—The Early Favorite (Rivers) ripens the earliest, about the middle of July. Then the St. Etienne about the beginning of August—a sweet yellow plum. Then Denniston's Superb, darker in color, very prolific, and very good. Then the Green Gage for the end of August; the delicious American Jefferson; the Reine Claude de Bavay, a splendid plum; Coe's Golden Drop, first-rate for pots; the old Quetsche; the Late Orleans, and Huling's Superb. All these are very good for pot culture, and can be depended on.

Pears for the Orchard-house.—In this case each person must select according to his individual taste. Some kinds are really better, as the Brown Beurré, the Joséphine de Malines, the Beurré Clairgeau, the Bergamotte d'Esperen,

the Winter Nelis, the Louise Bonne, and the Van Mons Léon Leclerc. All these are decidedly good pears. The Winter Nelis and Joséphine are the best, according to Mr. Rivers.*

The summer pears hardly require protection; but if in cold localities far north it is wished to have one or two in-doors, then choose the Doyenné d'Été and the Jargonelle.

Apples.—The Newtown Pippin and Northern Spy are the best, and others are readily discovered if required.

It must not be forgotten by the amateur, that at least one half of the trees for his orchard-house should be purchased in a bearing state, because by this plan he will have fruit at once, and also have models of what his training the others should be.

For out-door culture, the best peaches are Noblesse, Royal George, Grosse Mignonne, Bellegarde, Red Magdalen; and, of late sorts, Bourdine and Chancellor. The *Élrage*, *Violette Hâtive*, and *Pitmaston* orange are the best for out-door culture; of the nectarines. *Apricots.*—The Moorpark in favorable localities, but it is a very shy bearer; the Roman, the *Hermiskirke*, a nice large variety; and the hardy *Breda*, which comes in August, and can be recommended. *Alberge de Montgamet* is small, early and hardy. The *Royal apricot* is also a valuable kind.

CONCLUDING OBSERVATIONS.

This last chapter shall be soon written. By this time, doubtless, the amateur is more than satiated with peremptory precepts. But they were unavoidable. The only alternative was to introduce endless physiological discussions, which it would not have been difficult to do, but which would not have simplified anything. On the other hand, without a few general principles on which sound training is best conducted, every observation would necessarily have had to be taken on trust. The consolation is, that this defect is common to all

* Again Mr. Bréhaut's advice is of little value to American cultivators. To cultivate *Bergamotte d'Esperen* and *Jargonelle*, or even *Van Mons Léon le Clerc* and *Joséphine de Malines*, would be to make a very poor selection, when such pears as *Marie Louise*, *Sheldon*, *Beurré Hardy*, *Glout Morceau*, *Brandywine*, and other equally fine sorts, are to be had.—Ed.

books on fruit culture. "The explanations of horticultural operations," says Lindley, "are simple, and free from obscurity; *provided* they are not encumbered with speculations. Chemical illustrations, unless of the simplest kind, or references to the agency of electricity, have little obvious application to practical purposes."

The object of a brief work like this, is not to elucidate the laws of vegetable life in all their minute and, it must be freely confessed, obscure details, but to narrate to those already acquainted with the art of horticulture, some experiences, with which they have not had the leisure to become familiar. Certainly there were many most interesting natural phenomena which were very tempting to enter into: respecting temperature, for example, a vital point in these matters; or moisture of soils; on the periods required by plants for rest, which is a very important subject, and one which that acute observer, Mr. Knight, has so well explained.

Certainly, few people appreciate the necessity of diurnal repose for plants, as well as their long rest during the winter months, and thus the pernicious custom of keeping up high temperatures during the night in forcing houses is still too much in favor. This vicious custom exhausts the trees, without promoting their growth or aiding the ripening process, and as it bears so directly on the subject treated of here, I cannot refrain from quoting as follows: "As early in the spring as I wanted the blossoms of my peach trees to unfold, my house was made warm during the middle of the day; but, towards night, it was suffered to cool, and the trees well syringed at as nearly the temperature of the natural exhalations as I could."*

Under this treatment Mr. Knight's trees flourished, and the blossoms were extremely large, this being a most im-

* Truly does Mr. Bréhan call it a "vicious" custom to maintain a high night temperature. Nothing, we have long been convinced, is so injurious to any plants or fruits cultivated under glass, as a high night temperature. The plants *must* have repose; and to be kept under constant excitement, night and day, is sure to weaken and eventually ruin them. Except when the weather is very unfavorable, ventilation should be freely given at night as well as during the day.—Ed.

portant matter, as the size of the blossom much regulates the size of the fruit.

Then the subject of soils is quite endless. It, however, deserves a volume to itself, it is so important.

For example, in sandy districts which are so very soon heated, the sand seldom dries deeper than ten or twelve inches, while sea-salt becomes damp at night. On the other hand, clay heats very slowly, besides being too compact for the spongioles to penetrate, and retaining water. It has, therefore, every bad quality. Sand, however, dries up too rapidly to be suitable by itself. A mean between these extreme cases is, therefore, of general use, with the addition of peat. These exercise separate and counteracting influences. The loam consolidates; the sand lightens; and the peat unites. This is, therefore, a perfect mixture.

Nevertheless, that loam which has the most calcareous matter is far the best, for calcareous earth enters largely into the organization of plants. It also, according to Davy, depends on the action of the lime and vegetable matter together. Manures act, either by stimulating, by absorbing the moisture, or by supplying food, *i. e.*, carbon and nitrogen. Carbonic acid, at least, forms an essential part of the substances of plants. It is, however, proper to apply manure when the plants are rapidly growing, and to those parts which can absorb it, and not, as a great many do, at the stems of the trees.

The fall of rain furnishes the observer with many most interesting phenomena for remark, and thus horticulture leads the inquirer into many paths he would otherwise never have trod. Less rain will certainly fall on the top of the house than falls on the surface of the ground. The average of downpour of a day and night is one inch of water; but in the west of England it is one third more, and in the lake districts double the quantity. It is also remarkable how a high temperature with a southwest wind will absorb the vapors, and cause a delicious temperature, most healthy for men as well as for plants. But the climate of England is certainly very moist, and every precaution must be taken to carry away the superfluous waters from the borders.

Ventilation is an inexhaustible subject, and one of much moment to the horticulturist. In the orchard-house, however, it is much simplified, though I see that Mr. Rivers recommends fewer top ventilators than were of use at first, and certainly cold currents of air, especially if charged with excessive moisture, cannot be suitable to peach culture. Precautions must therefore be taken to guard against these, as also against strong winds acting directly on the ripened fruit. Ventilation is chiefly necessary to carry off noxious vapors, and it is inconceivable how soon these are generated. A minute quantity of sulphurous acid will cause every leaf in the house to drop in a day. In forcing-houses ventilation in the spring is rather injurious than beneficial. When the air is charged with moisture it is more suitable for plants in a growing state than when they are ready to rest. "The skilful balancing of the temperature and moisture of the air, and a just adaptation of them to the various seasons of growth, constitutes the most complicated part of a gardener's art."—*Lindley's Theory of Horticulture.*

Enough, however, has been said on these subjects, and perhaps by this time the reader is reduced to that condition in which Horace, anxious to prepare for his supper party, querulously tells his servant, "Persicos odi, puer, apparatus," which, as the botanical name of the peach is "Persica," may be thus rendered: "Gardener, I am sick of your peach training."

The principal suggestions are—summer pinching reduced to a method, and perfected in the winter pruning of peaches on the alternate system; and the placing the trees diagonally at short intervals. I have not dwelt much on the obvious advantage of being able in this way to occupy a valuable wall with a succession of fruits, precious to the cultivator as this must be, because it seemed to me that the being able to shorten the period in which the wall space could be covered with fruitful wood, completely overshadowed other considerations, for in horticulture, as in other matters, the gain of a year is of inestimable value.

I only wish, therefore, to say that no apprehension need be entertained of the shoots on the leaders becoming too long to

manage, (an apprehension, by-the-by, not without its cause, for Mr. Rivers writes to me on this subject, that he finds these very shoots "always fighting to get away from the tree,") but by merely allowing a few leaves to grow beyond the long bearing shoot, (as in the vine,) and by cutting it back to two buds directly after bearing, the shoots can be kept compact, fruitful, and close to the main stem.

In all these cases, the reader will readily have discerned that my favorite is the Diagonal Cordon, but with the exception of the growth on the lower sides of this form being weaker than those on the upper, the management of the spurs and shoots is the same in all cases.

I have had much pleasure in writing this book, but at the close I feel that others will profit by my hints, and that I must exert myself if I wish to keep pace with them in the friendly race.

Having thus concluded this little treatise of Mr. Bréhaut, we again commend it to the attention of all cultivators of fruit, whether in orchard-houses or the open air. Several of his observations have no application in our climate, but the general principles of culture as laid down are sound, and show that the author has been a very close observer of the growth and characteristics of trees.

It occurred to us, as the sheets were passing through the press, that a work so especially adapted to the treatment of orchard-houses, now attracting so much attention, ought to be generally read; and as thus far our own cultivators have had but little experience, such advice as would lead them in the right direction would be highly prized. We therefore had a few hundred extra sheets struck off, which we shall issue in a small volume, offering some general remarks, and adding thereto some account of the Single Cordon system of training trees, and a list of the varieties of fruits best suited to orchard cultivation.

The volume will be issued in October.

POMOLOGICAL GOSSIP.

THE STRAWBERRY.—The season has been unusually favorable for the strawberry, and the crop was not only very abundant, but large and fine. Constant showers of rain during the entire fruiting season, carried the crop through to a late period.

We had intended to give some analysis of the various opinions expressed by different cultivators in regard to some of the prominent varieties; but they are so conflicting, and would occupy so much space, that we can only allude to a few of them. Fortunately we have this in part done for us by Mr. Barry of Rochester, who happened to be in Boston just as the strawberries were in perfection, and his remarks are generally so correct and to the point in question, that we are relieved of the labor of collating from other sources. Mr. Barry writes as follows in the Rural New Yorker:—

“There seems to be an unusual degree of interest manifested this season, in nearly all parts of the country, in regard to strawberry culture and the merits of the different varieties in cultivation. The severe drought we experienced in this section injured our early varieties particularly, and the market supply has been of rather an inferior quality. Wilson’s Albany and Triomphe de Gand seem to be regarded as the most important varieties, and are most extensively planted; but I hope our growers will not be confined to these. Longworth’s Prolific and Hovey’s Seedling are famous market fruits, and should not be overlooked.

“The publishers of the American Agriculturist recently offered fifty dollars in premiums for strawberries, and I understand that the Albany and Triomphe de Gand were the leading sorts, and carried off the highest premiums. Hovey’s Seedling was not even presented.

“A friend writes from St. Louis, June 24, that the Albany is more largely planted there than any other variety, but thinks it will soon be supplanted by others of better quality. Triomphe de Gand, he says, does very well. Downer’s Prolific does well, and is as early as Jenny Lind. Washington (Iowa).

has been heretofore more extensively grown than any other at that place, and so it has been at Cincinnati.

"A gentleman writes from Bloomington, Ill., that Wilson's Albany is 'very far ahead yet—no other sort within gunshot of it.'

"Mr. John Saul, of Washington, who has given much attention to the culture of the foreign varieties, gives the following as their best, in the order named: Seedling Eliza, Triomphe de Gand, Victoria, and Jucunda, and adds that a sight of the Victorias and Triomphe de Gands grown this season in gardens there, were worth a journey of many miles to see.

"At Baltimore I am told that the markets are mainly supplied with Hovey's Seedling and Early Scarlet, with a few McAvoy's Superior and Fillmore.

"At Boston both growers and dealers claim the highest rank for Hovey's Seedling. I was in that city on the 27th of June, and in passing around the streets I noticed in all the fruit shops and other places where fruit was exposed for sale, large quantities of beautiful Hovey's Seedling, and rarely anything else. In the hotels, too, Hovey's Seedling had no rival on the dessert table. The difference between these splendid fruits displayed in the markets and on the tables in Boston, and the small miscellaneous trash which you find in New York, is really wonderful. The retail price in Boston for Hovey's was thirty cents per box, less than a quart, and one dealer told me that he could not sell Wilson's Albany at any price. The taste of the Boston people has been cultivated to a high standard of excellence, in a great measure, no doubt, through the influence of the Massachusetts Horticultural Society. Triomphe de Gand has not been fruited there yet to any extent—for some reason or other, Boston, with all her zeal for novelties, has been the last place to take up Triomphe de Gand. We shall hear what they will say about it next year, as many plantations are now coming forward.

"I had the pleasure of attending Mr. Hovey's annual strawberry festival, which proved to be a most agreeable and instructive entertainment. The company first made a hasty survey of the grounds, which are in fine keeping, and ex-

ceedingly rich in rare trees and plants. In the pot plant department, we were conducted into a small tent, where there was on exhibition a collection of Cape heaths—magnificent plants in size, symmetry of form, and profusion of blossom.

“The rhododendron and kalmia grounds were visited. The beds of kalmias were one mass of flowers—a sight well worth seeing. The long lines of beautiful specimen pear trees were passed, Mr. Hovey pointing out his favorites. The crop is in a most promising state.

“The strawberries were then visited in the beds, and each variety passed in review. The collection is very rich, especially in foreign varieties. Admiral Dundas, Ambrosia, Bonte de St. Julien, Duc de Malakoff, Empress Eugenie, La Constante, Oscar, Rivers’ Eliza, Wonderful, &c. All these and many others were well grown, and carefully protected from birds by netting. Several of these are very promising. Some berries of the Empress Eugenie were of enormous size, but the most promising of all appeared to me to be the Constante. It has the vigorous and prolific character of the Triomphe de Gand, and is superior in flavor. It will surely become popular.

“Among American varieties the Austin Seedling shows well as to size and quality of fruit, but the color is poor and the flavor indifferent. I find it the same in our grounds, and it is not likely to become a standard sort.

“Wilson’s Albany was not in a condition to be judged. The beds had evidently not received the same care bestowed upon the others. Hovey’s Seedling and Boston Pine were very satisfactory, the former, especially, surpassing all the other American varieties. Triomphe de Gand was not in the collection in fruit.

“Having satisfied ourselves with an examination of the strawberries in the beds, we proceeded to Mr. Hovey’s mansion, where we found a table bountifully spread for us with dishes of all the different varieties of strawberries named, accompanied with numerous other comforts befitting such an occasion.

“The varieties were all taken up in turn, tasted and dis-

cussed in the most critical manner, the feast closing up with two superb dishes of Hovey's Seedling, which it was believed did not suffer by comparison with any of the fine varieties previously tasted.

"The Belmont Farmers' Club had announced its annual strawberry exhibition for the 1st of July, and I regretted very much being unable to prolong my stay in Boston until that time, as this club makes a superb display.

"The fruit crop around Boston is very promising. The exhibition next fall, during the meeting of the Pomological Society, will undoubtedly surpass anything of the kind ever seen in this or any other country, and will itself be worth a journey of thousands of miles. I observed in the collections of Col. Wilder, and also in that of Messrs. Hovey & Co., many new varieties in fruit that have not yet been exhibited. Delegates to the pomological meeting may expect a good time.

"Mr. Wilder is pursuing the culture of Roger's Hybrid grapes with enthusiasm. I observed a second generation, some of which resemble in foliage foreign varieties. This Roger's experiment in hybridization may yet lead to results of immense importance to American grape culture.

"My notes are already too long, I fear, and I will defer the remainder to a future time."

Mr. Barry is an intelligent cultivator and a careful observer. The New York strawberry growers ought to thank him for his just remark in regard to the "miscellaneous trash which you find in New York." The strawberry season is two weeks earlier in New York and New Jersey than our own; and thousands of baskets are sold in our market before the crop is ripe here. The usual price is twenty to thirty cents per quart, and they would not be bought at all if there was any choice. Now if these same growers would send fine Hovey's Seedling, they would command fifty to seventy-five cents a quart—a difference in the aggregate of the strawberries sent to Boston of thousands of dollars.

We only regret Mr. Barry did not visit the Belmont cultivators and witness their mode of culture, and satisfy himself of the enormous crops of the magnificent fruit which he

everywhere saw offered for sale. No amount of talk or even statement of quantity would be like the self-evident fact—seen by one's own eye.

PROFITABLE STRAWBERRY CULTURE.—For the last two or three years we could hardly open an agricultural paper without seeing some notice of Mr. Knox's strawberry culture; of his great crops; of his supplying the markets of Philadelphia, New York, Cincinnati, in fact the whole country except Boston, travelling 500 or 600 miles without injury. His Wilson's bore 300 bushels to the acre, and sold more readily than any any other variety. His advice, two years ago, was to plant nothing but the Wilson for profit. All at once it appears he has discovered the Triomphe de Gand,—an old sort, tried in Boston a dozen years ago, discarded in Europe,—to be *the* strawberry; and according to a writer in the Country Gentleman, who also had the Wilson-mania two years ago, he has actually been "ploughing under many acres of other varieties, *in full bearing*, during the present season, to replace them with this!" It seems that the Triomphe de Gand "combines in itself all the excellences of all the best varieties. Among the good qualities which recommend it are, its immense size, superior flavor, prolificness, (equalling if not surpassing the Wilson in this respect,) the solidity of its fruit, its color and fine appearance, the length of its fruiting season," &c. His advice to both amateur and market gardeners is to plant "first, second, and last, the Triomphe de Gand." We think this should settle the question.

Unfortunately, the Pennsylvania Horticultural Society pronounce the Victoria—another old variety, mostly gone out of cultivation around Boston years ago, and discarded in England—the best; so that neither the Wilson nor the Triomphe de Gand really possess "all the excellence of all the best varieties"—quite.

The strawberry growers around Boston are quite contented with 4,000 quarts to the acre, which net about \$800. Now if Mr. Knox would send his fifty acres of strawberries to Boston, it would give him, at the rate of 300 bushels to the acre, something like 450,000 boxes, which, at the above rate, would be \$90,000—certainly a paying crop, too much so to

plough under when full of fruit. What variety will turn up next? Perhaps Stoddart's Mammoth Alpine (!), which produces 500 bushels to the acre.

LADY DOWNE'S SEEDLING GRAPE.—Of this variety, which is beginning to be recognized as one of the best late-keeping kinds, some interesting facts have been recently elicited, through the observations of Mr. Thomson of Dalkeith. A fine sample of this variety, with plump, fresh, richly-flavored berries, was sent by him to South Kensington on the 19th of April last. At the time this was gathered, the vine which bore it was coming into leaf, as the young shoots on the branch cut with the cluster bore evidence. The vine had been set apart for experiment, and this had enabled Mr. Thomson to observe the facts alluded to in the following passage from his letter:—

"I found that as soon as the buds on the vine began to swell, so did many of the berries on the bunches that were previously beginning to shrivel a little, but those that were much shrivelled did not swell in the least. Those berries, however, that did receive the sap began to burst their skins and drop sap slightly tinged with the coloring matter of the berry, as compared with sap direct from the wood. I found I could stop this swelling and cracking of the berries by making two incisions with the knife right and left in the lateral the bunch hung on; these incisions drew off the sap that was being forced into the berries of the bunch. The sap from the berry, as well as a slight tinge of color, had a slight flavor of the grape."

The bunch exhibited, which was accompanied, as just stated, by a young growing shoot, was in excellent condition, excepting as regards the berries that were cracked by the force of the ascending sap. On the 6th of May, another cluster from the same vine was sent, and in this latter the action of the sap was exhibited in a more marked degree, the skin of every berry being more or less ruptured. It would thus appear, that though excellent up to a certain period, which in the present instance proved to be the month of April, Lady Downe's grape cannot be kept hanging later than this, unless the vine can, at the same time, be kept in

a state of rest. In the instance to which we have been referring, ripe grapes had been cut from the same house early in the previous August. Those gathered in August were Hamburgs, which variety lasted in cut till Christmas; then followed Frost's St. Peter's and the Calabrian Raisin, the latter a grape which Mr. Thomson thinks will be more appreciated when better known; and finally, in the latter end of January, there were 200 bunches of Lady Downe's Seedling remaining, which lasted up to May.—(*Gard. Chron.*)

KEEPING GRAPES.—We may also record what appears to be a very good plan of keeping grapes which Mr. Thomson had adopted, and which, writing on the 19th of April, he describes thus: "In February, I cut a great many bunches of the Lady Downe's vine. I left the bunches attached to the branches that bore them, sharpened the points of the branches where they had been detached from the parent stem, and ran them a couple of inches into Mangel Wurtzel roots. These I laid on the shelf of the fruit room, and allowed the grapes to hang over the shelf, and cut them as required. In this way they kept perfectly plump in berry till the last bunch was consumed this month."—(*Gard. Chron.*)

STIRLING CASTLE PEACH.—A variety raised, as its name indicates, at Stirling Castle, and on two or three occasions exhibited in London, has lately been approved by the Fruit Committee of the Royal Horticultural Society for its earliness, and the facility with which it may be forced. In the forced state it comes very well colored, and of average size, and is also remarkably well flavored. It seems to be, therefore, a useful variety for this particular purpose. Mr. Carmichael, gardener to the Countess of Dunmore, at Dunmore Park, by whom it has been exhibited, states that no other kind known by him sets so freely. The tree nearly fills one house, and bears large crops every season, though forced early. Forcing is generally about the 1st of November, and the tree is generally in full flower about the middle of December. In 1859 the fruit was ripe on May 20th; in 1861, on May 6th; and in the present season, on April 23d.—(*Gard. Chron.*)

IN-DOOR GARDENING.*

FROM THE GARDENERS' CHRONICLE.

WHEN the east wind has gone and the sharp frosts are over, the pleasantest time of the whole gardening year begins, and we can fill our window-boxes with very gay spring flowers to last us till the warm summer days enable us to bring out our treasured room plants for a little air. How sincerely do I wish that all town windows were made with glass recesses such as they have abroad, so that small winter gardens of some hardy things might not be impossible to those whose rooms are already filled with the more tender plants.

This however is not my present business. My present affair is strictly with spring flowers.

It is exceedingly odd how seldom one does see a really pretty window. Very often the pots are not placed *in* anything, and then it cannot be pretty, but even when there are boxes that might be nice they are not good patterns or not right colors, or else the flowers are evidently put in one by one, and not as a pretty *group*.

Really pretty and inexpensive window boxes seem still a desideratum; the blue and white tiles are perhaps the prettiest of those made; but they are sadly wanted of some still cheaper kind suited to fill up every cottage window. I did hear a talk of some of painted zinc, but these I have never seen; and most window boxes have the wretched failing of being pierced with holes, which though indeed desirable for a single flower pot standing in a saucer, is very miserable when it comes to dripping from an upstairs window.

My own boxes never have holes, or if they exist they are fastened up tight with corks, and thus it is that the boxes are

* This article, as well as those preceding it, was written for the early season of the year, and consequently some of the advice will not apply at this season; but the information may be treasured up for next year. The advice, however, relative to cuttings, is just in season, as it is now the time to put in *Pelargonium* cuttings, as well as *Scarlet Geraniums*, *Verbenas*, &c., for an early spring stock.

Miss Maling's papers are the most complete of anything yet published on the culture of house plants, and we wish to give them in course, though some of the information is out of season.—Ed.

so useful always throughout the year, holding the pots and sheltering them while acting as well as saucers (though not meant to be filled with water). The boxes, I think, should always have a layer of sand at the bottom, or else a lining of cocoa-nut fibre or moss. The sand answers much the best, only it is so heavy that if weight is undesirable it should not be used. I have had deep boxes filled nearly up with cinders, or ashes, or hay, or almost anything that came first, but the hay is only of temporary use, as it gets black and disagreeable, and might be unwholesome to heap up in a window.

The first thing generally that one adopts is sawdust. One also is apt to renounce it first! It gets into such a horrible cloggy mass, fills up the holes in the pots, falls about on everything if we move a pot, half decays, grows fungi, and is, in short, a very bad thing, indeed; and though it might do well just for a few hours, it would never answer for our summer boxes. Hay and moss, on the contrary, suit the plants most perfectly; they root down into these and grow quite delightfully.

We must, however, take a box for granted, and now only think of the flowers for it. People in London may venture on double daisies, and fill up with double dark brown wall-flowers, which are so very sweet and early. Others may have pots of tulips; especially the dwarf double kinds; and hyacinths and quantities of anemones. Of the latter, the single kinds are very far the prettiest, and the brilliant scarlet sort, pale pink and white, and blue, make most delightful boxes. They should be grown in pots in a perfectly light place—never covered up except in heavy rains or at night from frost; and if under this treatment they blossom very early it will be found well; when arranged in the window-boxes, to take them in and place them in a sheltered place on a frosty night. A bell-glass otherwise can be then put over them to give a little shelter and prevent the early blossoms from being nipped by cold or battered by wind and rain.

There are, however, two kinds of window plants which seem to be almost forgotten, namely, pansies and auriculas, and yet there are few flowers that seem to me more charming. The auricula, some may say, lasts so short a time, but in

pots I have had it from Christmas till after Easter in constant blossom, though that was not indeed in London. Pansies are also the very things for windows, easily grown by cuttings planted in sand under a shaded glass—fond of water but also fond of sunshine, and giving such a great abundance of their lovely flowers. Where we have to fill a set of three windows looking any way but due north or south, the various colored pansies would make, quite by themselves, two very pretty boxes, and we might then have for the centre a box of hyacinths, tulips, or anemones. The three latter require a close sort of green ground, but the pansy generally has green enough itself.

Lilies of the Valley again are the most exquisite of flowers to blossom late in summer in a due north window, where they may be mixed with little Blue Lobelias. My way of having these has been to obtain the roots at the proper time, which is about November, and then, instead of bringing them on gradually, to keep them as dry as possible—while retaining their vitality—till, later in the year, they are placed in a box, and watered, and allowed to flower. My own, two years ago, were beautiful from July to October. I only name this now because those who wish to try it must beware at present both of warmth and moisture. The origin of my flowers coming at that unusual season was the simple fact that they had been quite forgotten, and left in their winter quarters till the end of June.

Window gardeners now, if they mean to strike any cuttings, should be putting a few old plants in warm sunny windows and watering them a little, that they may shoot out. Fuchsias, begonias, verbenas, and lobelias are some of the easiest grown, and it will be time next week to talk of striking cuttings.

The time of year for striking cuttings has at last arrived, and few are the windows which do not witness sooner or later in this busy season some attempts of this kind.

The geranium cuttings generally do best when taken so as to include three joints, through the lowest of which the cut passes. The leaves if large should be cut off near the stalk, and the cuttings should be either planted singly in small pots

or pressed rather firmly against the edge of a larger flower pot. The centre of the pot, slightly hollowed, should be left quite empty to facilitate watering. Fuchsias also, if woody cuttings, do admirably thus treated. Heliotropes, verbenas, fuchsias, if young shoots, lobelias, and begonias, do most beautifully when planted in pans of silver sand, soaked and overflowed with a little sheet of water. The cuttings, as short as possible, may be stuck in all over, and if put into a warm and sheltered place they will grow most rapidly, and make the most charming bunches of little fibry roots. These things will even often strike in small bottles of rain water, the convenience of which is that they take so little room.

The cuttings grown in sand will generally be ready to plant out in pots by when the water has dried, and previously to drawing out the little plants it is well to soak the sand again most thoroughly.

Very small pots do best for planting out the cuttings—a little charcoal and then a little moss should be used for drainage—then some leaf-mould and loam, or a little half charred soil from some turfy pasture, and all being moistened slightly a hole should be kept open into which to drop the cutting, filling up with soil if the plant was struck in soil, or with silver sand if the plant grew in sand or water.

The newly potted plants want a little shade just at first, and must be accustomed gradually to more and more of air. They should not however be exposed to hot sunshine or to heavy rains. The use of moss in the flower pots will be found very great, and in giving a larger pot it need never be removed, as the roots grow down into it, and seem greatly to delight in it.

Begonias are of all things delightful for window gardens if they are kept moist enough; but they ought very seldom to be exposed to hot sun in summer. The little begonia Dregei grows from cuttings most easily, and is a charming little plant, in most constant beauty. This does remarkably well in cocoa-nut refuse, and with charcoal and moss for drainage. But for these kind of plants some sort of case-pots are wanted terribly, made without holes, and of some stuff like china so as not to be porous. Square pots I think would do best, as

affording more space for filling with sand or fibre, or even for planting moss ; but something between expensive China and common red pottery is certainly wanted greatly, as much for greenhouse shelves as for our room windows. Holes are undesirable for these outer pots, and the plainer and simpler the colors can be, the better they suit with flowers. Terra-cotta is rather thick and takes up much room, or its appearance is far better than the tile patterns, which are apt to be too staring.

Myrtles and sweet verbenas are plants that every one likes to grow ; but it is very odd how seldom it is that people succeed in striking them at first.

The best way I know for the myrtle is to take either half-hardened shoots, and plant them in soil as usual, or to use little points of very young shoots indeed, placing them in the before mentioned sand and water, in which I have struck great numbers. For the verberna (*Aloysia citriodora*) taking a woody stem just about to bud out is the most certain method, though a strong young shoot in sand makes perhaps a prettier little plant, and grows much the quickest. The difficulty is, that it must be kept moist and warm, and yet neither too damp over head, or too closely shaded. The sweet verberna perfectly delights in cocoa-nut fibre refuse. And it certainly is one of the most charming window plants. This is a plant, too, which we ought to keep on for years. Those I used to have when I was a child grew in the border all summer, and stood in the winter in the nursery window sill losing their leaves in autumn, and the too tall branches shortened. After Christmas they were put on the chimney piece at night, which brought them on quite fast. These plants do best with a little water regularly every day, and indeed for window gardeners I am beginning to have great suspicions that this is the safer course for most things ; if a day's neglect does come, when we water rarely, it is so very likely to be just when it is most acutely felt. For growing plants, not endangered by cold, planted in well drained pots and rather lightly potted, I quite believe this daily watering will prevent many dropping verberna leaves, and many falling fuchsia buds—results of a sudden soaking or of over dryness.

This method too, to lady gardeners, has the great beauty of simplicity ; nothing is so perplexing as to know when to water. If one says daily—till the water just begins to run through, the saucers being emptied directly, I do not think that very much harm can happen to growing plants in summer. For pot plants however, standing in unprotected red porous flower pots, no one can hope to legislate—a couple of hours in a hot burning sun or in a windy place may produce a dry block of soil—or standing in a moist damp place, upon a stone perhaps, it may so happen that they keep moist for days. The verbenas, however, at any rate should be daily watered, except in the late autumns, when only the sand surrounding the pot should provide it with slight moisture, and the myrtles should be well watered from one year's end to the other, and above all, well washed.

REMARKS ON RHODODENDRONS AND SOME OF THE NEW EVERGREENS.

BY H. H. HUNNEWELL, ESQ., WELLESLEY, NEAR BOSTON.

I HAVE noticed with pleasure and profit the articles which have from time to time appeared in your Magazine on the subject of Rhododendrons and Laurels ; and, although it may seem unnecessary to add anything more on the subject just now, still, as I have been very successful in their cultivation, and there is little danger of its being overdone at the present moment, when public attention is so much absorbed with our national affairs, I am induced to offer to your readers the result of my experience, in the hopes that it may have some influence in increasing the cultivation of this most beautiful, though much neglected class of shrubs.

My first attempt in planting the rhododendron was ten or twelve years ago, when I procured several wagon loads from Medfield ; but, although I took more than ordinary care with them, I have only half a dozen plants left from the whole number, which, after struggling along for several years, between life and death, have finally become well established,

though not so large now as smaller plants, obtained at a later period from the nursery. Subsequently, I sent an order to England, but most of my first importations were of the *Ponticum* varieties, which have not proved hardy with me, so I lost much time, and the result is, that the bulk of my present collection consists of plants not more than four years from the nursery; still, they have attained some considerable size, and have made a great display, especially the present season. The weather has been particularly favorable for them thus far, this summer, and their growth is so vigorous, and they are becoming so crowded, that I shall have to separate them and increase the size of the beds, though it is not yet two years since they went through that process.

As has often been remarked, it is a most extraordinary and in some measure mortifying circumstance, that these two shrubs, natives of our own country, so highly appreciated and extensively cultivated in England and on the Continent, are so seldom seen in this vicinity that few persons ever observe them, or can distinguish one from the other. I imagine this can be attributed, partly to the prevalent impression that to transplant them is a difficult process, growing out of the fact that many of those who have tried their hands at it have been unsuccessful, because they have procured their plants from the woods instead of from a nursery, and partly from not having replanted them with sufficient care, in a suitable location. Any one who has visited the swamp at Medfield, which is the only place I am acquainted with in this vicinity where the rhododendron grows wild, and noticed the circumstances under which they there thrive in a wet boggy earth, and under a shade so dense that the sun can scarcely penetrate it, can hardly expect them to live when moved into ordinary garden soil, and in an exposure open to the sun and wind. And yet, when grown in a nursery, no plant is transplanted more readily, and the risk of loss amounts to nothing, not one in a thousand, unless from sheer carelessness. Neither is there any great difficulty in finding a suitable location; they will grow even when not at all shaded, though they will be shorn of much of their beauty, with the foliage dried and shrivelled up to half its natural size; but to have them flour-

ish in all their natural vigor and luxuriance, so as to attract the attention of the most indifferent observer, and receive the full admiration of the lover of the beautiful in nature, they must be planted on the northwest side of a building or plantation of trees, where they will have but little sun, or in a grove, if the trees are not so thick together as to shade them too much, as in that case, though the foliage is very fine, they will not blossom so profusely. My finest bed, composed of some two hundred plants, is in what was originally a common pitch pine woods, well thinned out, and it answers the purpose very well, the trees having mostly tap roots they do not rob the plants, and, to obviate the objection to their naked trunks, I have put climbing plants around them, thus rendering them, in fact, quite ornamental.

Although a single plant, when of size, is an object of great beauty, and worthy of general admiration, yet, to be entirely effective and show to the greatest advantage, they must be planted in masses and not scattered about one in each bed, all over the grounds, mixed with other shrubs, a mode of treatment which I regret to see has been very generally adopted in Boston, in the Public Garden. However, we are all of us continually making mistakes in planting, and it is not surprising, our city fathers should have done the same. That they will rectify theirs, in this respect, in due time, and render this attractive spot what it is susceptible of being made, a fit companion to our beautiful Common, there can be no doubt.

But to return to our immediate subject, a few plants by being together, and rearranged as they increase in size, will spread so rapidly as to cover quite an extent of ground in a few years, a moderate sized plant occupying some six square feet, so that twenty-five plants will furnish a bed of one hundred and fifty square feet—a beautiful object at all seasons, summer or winter, and where each plant is covered with fifty to one hundred of its gorgeous blossoms, I know of nothing of the kind to be compared with it for fine effect, especially of a cloudy misty day, for they seem to revel in a damp atmosphere, and appear to more than ordinary advantage.

In the preparation of the soil I have used about one third

peat, one third sandy loam, and one third of a good compost of well-rotted manure and decayed leaves, but, what is equally important, is, to have enough of it, certainly not less than two feet in depth, and three feet would do better. From my facility in having an abundant supply of peat I am in the habit of giving my plants a top-dressing of it every summer as a mulching, so that the above proportion becomes somewhat exceeded, and I find it very beneficial.

The Catawbiense varieties I have found decidedly the most desirable for cultivation, blooming some two or three weeks earlier than the maximums, which can, therefore, be used to advantage in prolonging the season. The Ponticums, which are of European origin, are cheaper, but too tender for this climate. They are not killed outright, but the foliage is more or less injured every winter, and they rarely blossom.

These remarks will apply, also, generally, to the Laurel, except that the latter will succeed more readily in ordinary garden soil, and is less particular as to location. It is seen oftener growing wild in New England, and the foliage is not so rich or the plant so striking, perhaps, generally, but the flower is equally beautiful, and it is a plant every way worthy the attention of every one who wishes to decorate his grounds with a desirable evergreen shrub.

I believe it is generally admitted that, notwithstanding the absence of any very severe cold the past winter, or any great and sudden changes in the temperature, evergreens have suffered about as much as usual, not merely the new kinds, but many of our natives, such as hemlocks and arbor vitæ, which we must attribute, probably, to the dry weather last summer, rather than to the winter. Of arbor vitæ I have lost more than for the previous ten years together, especially amongst those used for topiary work; and of the new varieties, the only thing which has suffered, particularly that had previously stood well, has been the variegated cedars, two specimens of these three to five feet high, having been killed down to the snow line, and the foliage of three others lost though the wood was uninjured, and they are now looking finely again. One of the new evergreens, of which I have great expectations, is the *Cupressus Lawsoniana*, the indications of its per-

fect hardiness being most favorable, and to my mind it fully realizes the enthusiastic accounts which have come to us from England, of its great beauty. I have had two dozen out two and three winters, in sheltered and exposed situations, have never had one killed or materially injured, and they are now two to five feet high, growing most vigorously, some making shoots two feet in length, and attracting the attention of every one who sees them. There are several of the firs, such as *Abies nobilis*, *Nordmaniana*, *Cephalonica*, *orientalis*, *Pinsapo*, and several of the dwarf varieties, also the *Picea píchta* with *Pinus excelsa*, *Lambertiana*, *Cembra*, and a few others, that, however, have not a great deal to recommend them for general cultivation, all of which, I suppose, may be considered, without much doubt, as entirely hardy in this vicinity, as I have had them out for several winters in exposed situations. As to the Douglas fir I cannot as yet speak very decidedly. I had a very fine lot of two dozen trees, three to five feet high, which were all killed three years ago, but it is proper to add that they were planted amongst some pitch pine trees, which they were intended later to replace, and a good deal shaded, making somewhat of a rank and late growth; and to this circumstance I attribute, in part, their untimely fate. I have some six or eight other trees, in other situations, which are doing pretty well, though they have all at one time or another lost their leaders, or had more or less dormant buds, and, indeed, I have never seen a really perfectly healthy tree anywhere. The question now arises, will these trees finally entirely recover their natural vigor and health, or will they, on the contrary, deteriorate, grow worse and worse, every succeeding year, according to a new theory, to which I propose alluding more particularly before closing these remarks.

There is another tree, the *Cephalotáxus Fortúni*, which will be quite an acquisition if it turns out perfectly hardy, as it promises to do; but I cannot speak with entire confidence, as all my plants, though out several years, are well sheltered by other trees. The Golden Yew has been perfectly successful with me, and is very showy. The *Retinospora*, also, does well, and of the *Thujopsis borealis* there can be no question.

I have several kinds of seedling Japanese trees, which I shall test this coming winter, and I trust with success, for they look very lovely now. The *Washingtonia* does not promise well with me, so far, and I have no great faith in its ultimate success in New England, for all the trees I have seen, even as far south as Philadelphia, have been more or less injured.

There has lately appeared an article in one of our Horticultural Magazines, on this subject of the hardiness of foreign trees, by which it seems the theory is finding some advocates, that the life of an imported tree depends mainly upon the amount of vitality which it brings over with it across the water, and unless *immediately* adapting itself to this climate, it gains no new strength from being planted here, and only survives as long as its foreign tone continues to support it, and as this year by year fades out, the tree passes away with it. This is surely rather a discouraging principle to admit, and coming as it does from one who has probably imported and tested more new trees than any other amateur cultivator in this country, of latter years, it must necessarily have a most unhappy influence in the future efforts of those disposed to introduce the new trees we hear of from Japan and other countries. Judging from my own limited experience, my impression, I confess, was precisely the reverse of this, though it is undoubtedly true that many of the new trees do worry along for many years, inspiring hopes, perhaps one season only, to be destroyed the next, and finally giving out entirely; but in part explanative it must be remembered that, in most cases, the number of these trees, from their high price abroad, is very small, generally consisting of one or two specimens of a kind, and so small and so protected by snow and leaves the first few years as to be no fair test; and it is possible the question of their hardiness would have been settled adversely, the very first year of their appearance in this country, had they been of sufficient size to have felt the full effects of our winter's climate. I suppose there can surely be no doubt that we have some foreign trees here which suffer more or less for several years, when young, but finally become well established, and thrive as well as our natives. For instance, there is the European silver fir, which has a hard time of it,

losing its leaders, and making little progress for several years, at least with me, and it is the case, I believe, to some extent, even as far south as Philadelphia, and yet it is finally a perfect success. Of the newer kinds I have myself several which at first were badly cut up, but have been gradually recovering and improving, as they have become older, and now bid fair to be quite successful. It seems to me that our experience with many of the new evergreens is hardly sufficient yet to warrant very decided opinions in regard to their hardiness and adaptability to our varied climate, and that we must wait until the price is reduced, and they become more generally distributed, before we shall know precisely what to depend upon. Some may succeed near the seashore, and not in the interior; some in one soil, and not in another; and let us hope many all over the country; and of the number we may have one that will even rival our beautiful Norway, which now so justly ranks one of the first as a lawn tree. In the mean time, if different cultivators will give us the benefit of their experience, we shall finally arrive at correct conclusions, and know what to rely upon for general planting.

Nothing could give us more pleasure than to present our readers with such an article as Mr. Hunnewell's, on a subject which we consider of the greatest interest, and by one whose experience enables him to communicate really valuable information, the result of careful observation and practice, aided by an intense love of beautiful shrubs and trees. Mr. Hunnewell's collection of these plants is very large, and in the very finest condition, being favored with a good locality, an abundance of the right material to plant in, and the requisite knowledge of the mode of using it. His rhododendrons and laurels, though, as he states, yet young, embrace all the best varieties, and his coniferous trees, as we have had occasion to notice in previous volumes, are in the very finest condition.

We have not space to discuss the subject of the hardiness of foreign trees, when introduced into our climate, but shall make a special article upon it in a future number.—Ed.

OUR HARDY HERBACEOUS PLANTS.

BY THE EDITOR.

THE Ranunculaceæ have one of its most beautiful representatives in the Trollius, or Globe-flower, an old and favorite

15. *TROLLIUS EUROPEUS*.

garden flower, a native of Great Britain, where it is found in meadows and low grounds. One species belongs to America, but it is so unlike in appearance the European as scarcely to be recognized as belonging to the same genus. The name is derived from the old German word *Trol*, signifying round, so globe-like is the form of the flower throughout its entire blooming. Our engraving (FIG. 15) represents the *T. europæus*, *L.*

TROLLIUS EUROPÆUS.

Notwithstanding it is so old a plant, it is far from being common in our gardens. Yet its hardiness, free growth, and great beauty entitle it to a permanent place in every collection.

It grows about two feet high; the leaves appear palmate, they are so deeply cut into five distinct lobes. The flower stem is erect and branched, each branch terminating in a single flower; at first they appear small, but they continue to enlarge without opening, the sepals preserving a perfectly globular form, enclosing the very small petals until they fall off. This shape is what gives it the name of globe-flower. The color is the purest and richest golden yellow.

Its cultivation is simple; it will grow in any good garden soil, preferring, however, a rather moist situation. It has the excellent habit of not spreading over the ground like many of the herbaceous plants, and flourishes well three or four years without renewal. It flowers in June.

To increase it, the plants should be divided carefully, as they form separate clusters or fascicles of roots. This may be done in the spring or autumn.

There are several other species of the Trollius, though we have cultivated but three or four of them. They are as follows:—

TROLLIUS ASIATICUS, the Asiatic Globe-flower.—This species has rather large flowers, which are of a deep orange, and more open than the common globe-flower. The stem is rarely branched, and the flowers are produced singly, appearing in June. It is a native of Siberia. It will grow in any soil, and requires the same treatment as the above.

TROLLIUS ASIATICUS ALBUS, the White Asiatic Globe-flower. Similar to the last, except in color, the flowers being straw-colored or nearly white. It is not so vigorous a grower.

TROLLIUS INTERMEDIUS, the Intermediate Globe-flower.—This is similar to the asiaticus in form, and intermediate in color between that and the europæus, being of a deep yellow. It grows about eighteen inches high.

Besides these three, the catalogues contain the names of six or eight species, probably all handsome, though none excel the *T. europæus*.

FLORICULTURAL NOTICES.

NEW LILY FROM JAPAN.—We have already given some account of a new lily which flowered in England, one of Mr. Fortune's acquisitions. We have also noticed the grand collection of lilies sent home by Dr. Siebold. What these are, and whether they will prove to be new and distinct, remains to be seen.

But we have an entirely new and truly beautiful lily, brought home from Japan two years ago by Gordon Dexter, Esq., who gave the bulbs to F. L. Lee, Esq., by whom they were given to F. Parkman of Brookline, who exhibited the flowers at a late meeting of the Massachusetts Horticultural Society, which were awarded a silver medal.

Mr. Parkman exhibited it as a "hybrid," but we are strongly inclined to think it a distinct and hitherto undescribed species. It may possibly be a hybrid, perhaps between *L. Brownii* and the *lancifolium*, as it has the brownish outside coloring of the former and the spotting of the latter, while its form is neither trumpet-shaped nor reflexed. It grows about the height of *Brownii*, and, like it, bears one or two flowers on the stem.

But, whether a species or a hybrid, it is very distinct. The flowers are very large, measuring eight to nine inches in diameter, somewhat saucer-shaped; that is, the petals, which are broad, spread out in cup form, but the tips are rolled backwards like the old white lily. The color is pure white, with a band of pale yellow running through the centre of each petal, shading off gradually towards the edges, and the whole surface dotted with small dark spots, not so prominent as in the *lancifolium*, but slightly raised above the surface.

These lilies were grown in pots, and its hardiness is not yet ascertained; but probably it will prove hardy. If so, it will become a valuable acquisition, not only for its own intrinsic excellence, but for hybridization with the Japan lilies. It has a peculiar strong odor, though not so agreeable as the *lancifolium*. We would suggest that it be called, whether a species or hybrid, *Lilium Dexterii*, in honor of the introducer.

Since writing the above, the Gardeners' Chronicle has been received, giving an account of the July exhibition of the Royal Horticultural Society, in which we find the following notice of a lily undoubtedly the same as the above, all the Japan plants received from Japan being precisely the same as those sent to England by Mr. Veitch.

"First among novelties, which were numerous, stood the *Lilium auratum* of Japan, as far superior to other lilies as an *equus auratus* to other equites—sweet as lily of the valley, and traced with golden bands, the color of pale Australian gold. 'Of this some further account will be given next week.' It was shown by Mr. Veitch."

We shall look for this,—probably a descriptive account,—and copy it in our next. Whether it had been previously named and described as *L. auratum*, or whether this is a name about to be given to it by Dr. Lindley, is unknown; probably the latter, as we notice in the awards of premiums that it received a silver Banksian medal as "*Lilium* sp.," showing it had not then a name. It well deserves the title of the Golden lily.

Societies.

AMERICAN POMOLOGICAL.

In conformity with a Resolution adopted at the last meeting of this National Association, the undersigned, President thereof, gives notice that its Ninth Session will commence in the Hall of the Massachusetts Horticultural Society, corner of Washington and West Streets, Boston, Massachusetts, on Wednesday, September 17th, 1862, at 12 o'clock, noon, and will continue for several days. All Horticultural, Pomological, Agricultural, and other kindred institutions in the United States and the British Provinces, are invited to send Delegations as large as they may deem expedient, and all other persons interested in the cultivation of Fruits are invited to be present, and to take seats in the Convention.

The present season promises to be the most propitious for Fruit that has occurred for many years, and it is anticipated that the coming session, which takes place at the same time with the Annual Exhibition of the Massachusetts Horticultural Society, may be made one of the most interesting which has ever been held by the Society. All the States and Territories are urgently invited to be present, by Delegation, at this meeting, that

the amicable and social relations which have heretofore existed between the members of the Society may be fostered and perpetuated, and the result of its deliberations, so beneficial to the country at large, be generally and widely diffused.

Among the prominent subjects to be submitted at this session will be the Report of the Special Committee appointed to revise the Society's Catalogue of Fruits, and thus to ascertain what varieties are adapted to the different sections and districts of our country. The various State and Local Committees who have not already made their Reports on the Revision are, therefore, solicited to forward them, without further delay to P. Barry, Esq., Rochester, N. Y., Chairman of said Committee. And it is further requested, that all other Reports, which are by the By-Laws made returnable to the General Chairman of the Fruit Committee, now deceased, may also be addressed to Mr. Barry, as aforesaid.

Members and Delegates are requested to contribute specimens of the Fruits best adapted to their respective districts—to furnish descriptions of the same, their mode of cultivation, and to communicate whatever may aid in promoting the objects of the Society and the science of American Pomology.

Each contributor is requested to come prepared with a complete list of his collection, and to present the same with his Fruits, that a Report of all the varieties entered may be submitted to the meeting as soon as practicable.

All persons desirous of becoming members can remit the admission fee to Thomas P. James, Esq., Treasurer, Philadelphia, or the President, at Boston, who will furnish them with the Transactions of the Society. Life Membership, Ten Dollars; Biennial, Two Dollars.

Packages of Fruits may be addressed as follows: "American Pomological Society, care of Mass. Hort. Society, Boston, Mass."

MARSHALL P. WILDER, *President*.

THOMAS W. FIELD, *Secretary*.

Horticultural Operations

FOR AUGUST.

FRUIT DEPARTMENT.

JULY has been a favorable month, with some very warm days, and timely showers, or light and gentle rains. Vegetation never looked more flourishing, or the crops of fruit more promising.

GRAPES VINES, now having their crops maturing, will need very little attention; if it is desirable to have them hang long, the house should be kept cool, by the free admission of air, day and night. Keep the house as dry as possible. Succession houses will ripen their fruit this month, and

just now will need attention; air freely in all good weather, and keep the laterals cut in when too crowded. Cold houses will now be swelling their fruit rapidly, and if August should prove dry the border may have one or two good waterings. Damp the house, both morning and evening, and maintain a good atmosphere, airing freely, however, in proper weather. Vines in the open air should have some attention, cutting away weak shoots, and tying in the strong; thin the berries, if very large grapes are wanted.

STRAWBERRIES should have attention; continue to keep the new beds, made in spring, clear of weeds, laying in the runners as they extend, cutting away such as are too crowded; such as are to be grown in rows, or hills, should have the runners cut off, and the space between the rows hoed frequently. Old beds, prepared as we directed in our last, should have the new runners laid in. New beds may be planted after the middle of the month, or as soon as the plants are sufficiently rooted to remove. Prepare the beds at once, by trenching and manuring, taking advantage of moist weather to transplant. Plants for forcing should now be laid into three-inch pots, sunk in the ground.

SUMMER PRUNING should be continued throughout the month of August.

THINNING FRUIT should be continued, looking over the trees occasionally, and taking off all that appear inferior.

ORCHARD HOUSES should be thoroughly ventilated, by keeping every available space open to the admission of air. Newly potted trees should be liberally watered.

FLOWER DEPARTMENT.

The season for preparation for winter soon begins; in small collections but little need be done till next month, but in larger ones, unless with an abundance of help, it will be necessary to commence this month. Winter flowering stock will need repotting, and tying up. Seeds of annuals should be planted, and cuttings for next spring stock put in. Soils and manures should be collected, and stored up for winter use.

AZALEAS will now be completing their growth, and will require much attention; as soon as the buds appear prominent, the plants should be removed to a situation shaded from the noonday sun, and away from strong currents of air. Water moderately, so as to secure thoroughly ripened wood. Young stock and late blooming plants may be kept on growing till next month. See that the thrip and red spider do not infest the plants, and give a dose of whale oil soap in time.

CAMELLIAS should be well syringed every evening. Now is the time to repot such plants as require it. Tie up and prune in crooked or straggling specimens.

CINERARIAS, propagated last month, should be looked over carefully, clearing off decayed leaves, and fumigating, if the green fly appears. Keep them in a cool frame, shaded from the hot sun. Now is the time to sow seeds.

CHRYSANTHEMUMS should be freely watered; discontinue pinching off the shoots, and repot such as may require it.

PELARGONIUMS, if not already headed down, should be pruned immediately. Repot the old plants as soon as they are well broken, reducing the roots and placing in small pots.

CHINESE PRIMROSES should have attention; the double sorts may be propagated from cuttings, and flowering plants cleared of decayed leaves, and repotted, keeping all in a cool frame. Sow seeds for a young stock.

FUCHSIAS, intended for large specimens, may be encouraged in their growth by a shift into large pots. Nip in the shoots, to make compact bushy plants.

OXALIS HIRTA AND **BOWIEI** should be potted.

VERBENAS, **HELIOTROPES**, &c., for winter flowering, should be repotted.

CALLAS should be repotted.

ROSES should have attention; cut off the buds of winter flowering stock so as to secure a strong and vigorous bush; repot all such as require it. Now is the time to bud **Manetti**, or other stocks.

HEATHS AND **EPACRIS** should be repotted, if not already done.

ABUTILONS should be pruned in, and afterwards repotted.

PROPAGATE BEDDING STOCK for next spring's use.

FERNS should be repotted, if growing rapidly.

JAPAN LILIES, in pots, done flowering, should be sparingly watered, in order to ripen off the bulbs.

WINTER FLOWERING STOCK, of all kinds, should be properly attended to, top-dressing, potting, or pruning, as circumstances require.

FLOWER GARDEN AND SHRUBBERY.

The fine weather tells upon the lawn, which now looks as fresh and green as in spring; continue to roll and cut every ten days, or fortnight, and rake and roll the walks, and clean the flower beds, or shrubbery.

CARNATIONS AND **PICOTEES** should be layered; **Pinks** may be increased by cuttings.

ASTERS should be neatly staked, as they advance in growth.

GLADIOLUS should be tied up to stout stakes.

AURICULAS should be repotted; shake off all the earth, and use a coarse compost.

HYBRID PERPETUAL ROSES will bloom more freely, if liberally supplied with manure water. They are gross feeders.

WHITE LILIES should be taken up the last of the month, if it is desirable to increase the stock, or change the beds.

JAPAN LILIES, coming into bloom this month, will retain their beauty much longer, if shaded from the noonday sun.

PELOXES should be freely watered in dry weather.

HOLLYHOCK, **SWEET WILLIAM**, and other perennial seeds, may be immediately planted.

HERBACEOUS PLANTS, of many of the early blooming kinds, may be taken up, divided, and reset, this month. They will then get well established before winter.

HARDINESS OF FOREIGN TREES.

THE curious and somewhat startling theory—alluded to by our correspondent Mr. Hunnewell, in our last number—recently brought before the public by H. W. Sargent, Esq., of Fishkill, demands more than a passing notice, coming as it does from one who has had much experience in the importation and acclimation of foreign trees. Ordinarily we should deem it a mere idea, and of no material importance, but such a theory, not original with Mr. Sargent but endorsed by him, if correct, will save the amateur planter many grievous disappointments, while it will rob us of many of the pleasures we had anticipated in the introduction of new trees and shrubs. But if, on the contrary, it should prove erroneous, it can have no other effect than to discourage planters from introducing new trees and shrubs into their grounds, and deprive us of the variety and beauty which they would add to landscape scenery. Hence it may be well to discuss the subject fairly and see whether there is, in reality, any foundation on which to build such a theory; or whether it is not, even with so careful an observer as Mr. Sargent, a mere fancy—the result of disappointment in endeavoring to do, what cannot be done, acclimatize a thoroughly tender plant.

It is not long since that a writer in the *Gardeners' Chronicle* made some very judicious remarks on the acclimation of plants, showing the utter impossibility of accomplishing anything in that way, asserting that there was not a single instance known of “a truly tropical plant establishing itself in a country exposed to severe frost;” and Dr. Lindley justly ridicules the Society of Acclimatization, established in London two years ago—the object, as its name indicates, being to acclimatize plants, birds, and animals. The last report, issued April 1—certainly a most fitting day—stated the results of its labors, which were the introduction of the Chinese Yam, and some kind of an arum, both from countries colder by far than Great Britain. In fact the society was doing one thing while

its name indicated another. They were introducing plants, birds, and animals—not acclimatizing them, in the true meaning of the word.

There is no such thing, we believe, as making naturally tender plants hardy in our climate, and when the coniferous trees of Patagonia, New Zealand, Australia, and the warm regions of Asia, fail to grow on the borders of the Hudson, a fanciful theory may be broached to cover such a failure; but that it has anything to do with foreign trees, other than those from tropical or sub-tropical climes, we think a very great error.

The geographical distribution of plants is so very extensive that we build upon it all our hopes of establishing any other species or variety in our climate than those which flourish in it. The plants from the tropics we know cannot be made hardy; but as we proceed in elevation up the mountain slopes, until we even there reach the snowy regions, we trust that the peculiarities of plants which show themselves so strongly in our own country may exist elsewhere. Thus, we find the *Magnolia glauca* in the Florida swamps, and the same tree in isolated localities as far north as Massachusetts, a geographical range of 1000 miles, flourishing alike in a tropical or temperate zone; other magnolias—all, we believe, except *grandiflora*—reach from Massachusetts to Florida, and are all hardy trees in our latitude. *Rhododendron maximum* grows from Maine to the Carolinas. The farthest northern limit of the Fringe tree (*Chionanthus virginicus*) is on the banks of the Brandywine, while it reaches south to the Gulf. Yet it is as hardy as the hardiest oak in New England. We might enumerate many other trees and shrubs which inhabit only the more southerly portions of the United States, but which are entirely hardy. It is this peculiarity of trees, of which we can know nothing until the trial is made, that leads us to believe many species, introduced from mountainous and cold regions of even warm climates, may possess the same characteristics, resisting our intense cold and eventually becoming perfectly acclimated. The tree pæony from China was for a long time considered a greenhouse plant, until accident alone revealed its hardiness; and various Chinese plants,

found growing in the same locality as the camellia, have been found entirely hardy, while the latter will not flourish north of Maryland.

These peculiarities of trees were noticed by Dr. Lindley, some time ago, in an article which we copied, (XXVII., p. 241,) in which it was stated that among a lot of *Araucaria imbricata*, nearly or quite killed down to the ground by the winter of 1860 and '61, there were a few specimens quite unharmed, showing some physical power in those specimens to resist the cold; and this was accounted for from the belief that the seeds were collected in a very elevated and cold locality, from trees which grew on precipices, *where water could not lodge*. Mr. Frost, the intelligent gardener of Lady Grenville, at Dropmore, where there is the largest specimen in Great Britain, informed us that for four or five years the young tree, when first planted, was injured every winter, and did not make any progress until he protected it with a thick covering of leaves all round the branches; this protection was continued till the tree attained the height of ten or twelve feet, when it became so strong and woody it no longer suffered, and when we saw it in 1844 it was thirty or forty feet high and a most striking looking object.

But to come more immediately to the correctness of this theory, what are the proofs? We quote Mr. Sargent's remarks:

"I have been coming very unwillingly to a similar conclusion the past year or so, for I think it within the experience of most planters of imported trees, (which are not unquestionably hardy,) that they sometimes look worse and grow less every succeeding year until they entirely fade away. More than this: when we find a tree able to withstand a winter such as 1860 and '61, when the thermometer indicated 18° to 20° below zero, and apparently doing well, and growing vigorously the succeeding summer, we are very apt to make up our minds that this tree is quite safe at this temperature hereafter, and are very much surprised and puzzled to find it does not withstand the succeeding winter, when as favorable as the past year. I find several trees have died this spring, which have sustained several winters of cold of 15°

below zero; among them, *Euonymus maritima*, the *Chamaecyparis variegata*, *Glyptostrobus heterophyllus*, etc. Now this winter has not destroyed them, but if my friend's theory is correct, they were obliged to give up so much of their English vitality during the winter of 1860 and '61 that they had not enough left to carry them through the winter of 1861 and '62."

This is the proof; that trees which have stood a temperature of 20° below zero, and made a growth the succeeding year, perished after the very mild winter (the temperature never so low as zero) of 1861 and '62. Now we see nothing remarkable in this. Certain sorts of pear and other trees in our grounds, fatally injured by the cold winter of 1857, and which have grown and borne fruit since then, have successively died from the severity of that winter. The heart wood was completely destroyed, and they lived upon the new layers of wood beneath the bark, which apparently was not hurt in the least. Mr. Sargent's trees evidently received their death blow from the excessive cold of 1860 and '61, but though growing well afterwards finally perished.

The idea that a tree lives on its English vitality is curious enough. We have hundreds of *Thuja aurea*, *Washingtonia gigantea*, *Cupressus macrocarpa*, &c., raised both from cuttings and seeds, which never had any English vitality in them, that flourished and grew to some height, and are growing still, though dwarfed and stunted, which were injured both by the winters of 1857 and 1860; and, as regards English trees, we have *Deodars*, *Abies morinda*, and English yews, imported in 1850, that are still alive and growing vigorously, only their growth is LATERAL not upright, the leaders having been killed every winter when the temperature fell to 15° or 20° below zero. They are far from fading away, except in beauty. A succession of mild winters, from 1844 to 1852, enabled us to raise a Cedar of Lebanon 10 feet high, but in a severe winter down it went to the snow line.

Mr. Veitch, in his account of his researches in Japan, alludes to numerous coniferous trees, that are magnificent in the valleys, or up the mountain sides to a certain elevation, when they become more stocky and dwarfed until at a high

range they are mere shrubs two or three feet high. The cold destroys their tender shoots, and they struggle with the cold, defying even that to materially injure their roots, which have the safe protection of the earth.

Imported trees from Great Britain are bad specimens to prove the hardiness of a species. The cold, wet, sunless climate of that country does not ripen their wood, and a very cold winter succeeding the summer, or even the second summer of their planting, in our country, is pretty sure to finish them up; just as all trees from a warmer climate suffer when brought to a colder one. We could give our experience in regard to hardy trees brought from some parts of New York State, which would not be very satisfactory on this head, for they have suffered severely in very cold weather, until they have had a year's acclimation.

Mr. Hunnewell, whose experience though not so extensive as Mr. Sargent's, is yet well able to judge, and in some respects more so than Mr. Sargent, because he has a colder climate to deal with, justly remarks that "his impression was precisely the reverse" of the newly-broached theory, and the instances he enumerates fully corroborate his views. We are ready to confess that we have no belief whatever in any such fanciful notion, and if our tender or half tender trees, which cost a deal of money, die, we shall say so—grievous as the loss may be—and not discourage the introduction and trial of supposed hardy species under a new theory that they will live no longer than their English vitality—poor as it is—holds out. Let our amateur planters go on introducing and planting, protecting till the trees are established, and if our severe winters then cut them down, discontinue any further attempt to replace them. It will settle the question as regards their hardiness and capability of enduring cold. All those, however, which pass the ordeal unharmed, or but slightly injured, should be placed in the Catalogue as perfectly hardy, or entitled to further experiment. Ignore all theories of "English vitality."

HALF HOURS WITH OLD AUTHORS.

BY WILSON FLAGG.

SYSTEMA HORTICULTURÆ, or The Art of Gardening. London, 1688. By J. Woolridge, Gent. In Three Books.

THE first book in this volume treats of the situation, soil, form, walks, arbors, springs, fountains, water-works, grottos, statues, and other garden ornaments, with rules and directions concerning them. The second treats of the different sorts of trees planted for shade or ornament, of winter-greens, flowers, and flowering shrubs, and the best ways of raising and preserving them. The third book relates chiefly to the kitchen garden, and to the improvement of every sort of land, for use and profit, as well as for pleasure and ornament.

The author, who has made a very concise and compendious treatise, calculated to instruct the reader without tasking his patience, says in his address to the reader: "arts as well as habits are subject to that fate of being in mode, as might be instanced in several, besides this curious art of horticulture. This never declines when once it has become national, only varies in form, according to the several temporary humors of such as find their delight in it." In regard to flowers, the author thinks the temperate zone more favorable to their production than the extremes either of heat or cold. Yet of the two extremes, he thinks the cold the most tolerable, there being naturally more flowers in the meadows of the Russian territory than in that of Guinea.

The value of a garden, according to Mr. Woolridge, is better ascertained by experience, than indicated by an imperfect pen, which can never sufficiently convince the reader of those excellent pleasures which are enjoyed by the owner of a complete garden, with its natural ornaments, its stately groves, and endless varieties of flowers. The author dwells emphatically on the influence of a garden upon the passions of the mind, reducing a discomposed imagination to a tempered tranquillity, and affording it a variety of pleasant themes. In fine, he remarks that a garden of pleasant avenues and walks, fruits, flowers, grotts, and other appurtenances, well composed,

is the only complete and permanent inanimate object of delight the world affords; ever conforming to our various and mutable dispositions, and supplying our own fancy with perpetual novelties. He thinks that all curious pieces of architecture, limning, and other works of art, that seem pleasant to the eye or other senses, at first sight or apprehension, at length become dull by too long acquaintance with them; but the natural beauties of a garden are subject to constant change and variety.

I shall pass over that portion of the volume that gives the usual common-place instructions in regard to soil and situation, and quote some specimens of curious ornaments which were in fashion, in the author's time. It is not to be desired, he says, that a kind and fruitful soil may produce all sorts of plants, proper for a garden of pleasure or profit; yet such a garden can never be said to be complete, nor in its full splendor and beauty, without the element of water. Fountains are the principal water ornaments in a garden. There is hardly a famous garden in Europe without its fountains, which were originally used for bathing, and are in the more southern countries used for that purpose to this day. The Italians have bestowed great cost in beautifying them for that purpose. The French have been very prodigal in their expenses of this kind. In England, fountains are made only for ornament, and are generally built of stone; some square, others round or oval, and of divers other forms; some flat in the bottom, others round like a basin. Into some of them the water is cast by pipes from the sides, out of the mouths of several figures, representing animals, or out of the pipes of *ears of stone*, standing on the brim of the fountain; or the water is cast from some figure or statue erected in the fountain, or from a pipe standing upright in the middle of it.

There must also be waste pipes, to convey away the water from such fountains, which must be so made that you may drain them at your pleasure. But where neither springs nor rivers can be obtained, water may be procured from the heavens, by conveying it from the eaves of your house into a cistern made for this purpose, and placed in a convenient situation in your garden; or the water may be obtained from the adjacent hills, in some cases.

"But if the place you live in be so dry,
That neither springs nor flowing streams are nigh,
Then at some distance from your garden make,
Within the gaping earth, a spacious lake,
That like a magazine, may comprehend
The assembled floods that from the hills descend."—RAPIN.

Here follows a curious description of several sorts of fountains, which I will quote:—

- "1. The ball, raised by a spout of water.
2. The water representing a double glass, the one over the other.
3. A dragon, or such like, casting water out of its mouth, as it runs round on the spindle.
4. A crown, casting water out of several pipes as it runs round.
5. A statue of a woman, that, at the turning of a tap, shall cast water out of her nipples into the spectators' faces.
6. The royal oak, with leaves, acorns, and crowns dropping, and several small spouts round the top.
7. A cistern, connected with pipes, constructed in such a manner as to produce musical sounds."

These waters, continues the author, should be preferred for the irrigation of plants to any other, as they are of a good temperature, and free from the impurity of some standing waters.

With regard to the ball, raised by the spout of water, he says: the water is made to rise in one small upright stream, carrying a ball of wood on it, which being exactly round, and placed on the mouth of the pipe, and the water, by the opening of a stop-cock made for that purpose, admitted by degrees, the ball will rise and be supported by the spout of water, to five, six, or seven feet high, in the same manner as single peas may be elevated by your breath on a straw. In case the ball be likely to fall, you may perforate it through the centre, smoothly and exactly in the middle, and place this small hole directly on the middle of the mouth of the pipe, and so raise the ball by degrees, and the small spout of water that passes through the centre of the ball will preserve it in its proper position.

By a copper cylinder, made to fit on the top of the pipe,

out of which the water violently flows, to take off and put on at pleasure, may you sometimes make the water resemble a large glass inverted, by placing a flat piece of copper on the top of the cylinder, and leaving only a narrow circular passage under it, for the water to flow freely out of it on every side. Another pipe or cylinder of lesser size, made to rise off the middle of said flat piece of copper or cap, with a like cap on the top of it, and a passage left as before, will cause the water issuing out of both the cylinders, the one over the other, to present a glass within a glass, both inverted.

Also crowns, birds, beasts, made of light brass or copper, hollow and easy to turn on a cylinder, the one end of the cylinder to be set on the top of the water pipe, the other end to force the water with certain thin *vanes* into the inside of your hollow figure, which will make it to move swiftly about, ejecting the water out of the sides or mouth of the figures in its motion—forms a sight very pleasant to behold.

The author mentions the custom of placing secret pipes under the ground, the ends not appearing above it, which, by turning a stop-cock, the water will be forced up suddenly, so as to surprise the visitor while walking in the grounds. He mentions also pedestals about a foot high, on which several figures may be placed, a small distance apart, and about ten or twenty on a side. The interval between these two rows of figures may be about eight or ten feet. Through the pedestals and figures small pipes must be brought, that the water may be ejected out of the mouth of the figures into the air, the one figure directing it towards its opposite figure beyond it, and a little sideways, so that at the turning of a stop-cock, each figure shall cast out a stream of water over like a rainbow, that you may walk under their spouts, as under so many arches, without any drop falling on you.

But what the author seems most delighted with is the singing of the nightingale, exactly imitated by the motion of the water, which is thus performed: In some cavity of a grot, or other edifice where it is desirable to hear this music, you must place a large cistern of lead, containing ten, twenty, or thirty gallons, as you please. This cistern must be well closed on every part, except the useful passages for pipes;

near the top must the water be let in freely, through a pipe about an inch in diameter; then you must have also near the top, two, three, or four small pipes, issuing out, tending a little downwards, at the end of which you must fix your pipes, made of brass or other metal, made before you fix them like an ordinary *fistula*, which children use in play, so that when you try it with your breath, and hold the lower end in water, it shall pipe and cluck like the nightingale. You may make two, three, or four of them, of several sizes, the biggest not large, and they will give some distinction in sound, these being fixed to the ends of the small pipes issuing out of your cistern, and the lower ends of them dipping into a trough of lead, a little below the bottom of the cistern. By the turning of a stop-cock, the water flows into the cistern, and expels the air through these pipes, which give you the desired music, until your cistern be full. The same may be repeated after drawing the water from the cistern.

The chapter on roses deserves attention, as it enumerates and describes the various kinds of roses which were favorites in England two hundred years ago. He considers the rose as the greatest ornament to a garden, and pronounces the yellow Provence rose the most beautiful, where it brings forth fair and kindly flowers, and is obtained by budding a single yellow rose on the stock of a flourishing Frankfort rose, near the ground. When the single yellow scion is well grown in that branch, inoculate your double-yellow rose, then cut off all suckers and shoots from the first and second, leaving only your last, which must be pruned very near, leaving but few buds, which have the more nourishment, and yield the fairer and more entire blossom.

This tree, or a layer from a rose of the same kind, produces the finest flowers in a cold, moist, or shady place, and not against a hot wall. The single yellow rose is hardly worth planting, except for the use aforesaid.

The next in color is the Austrian rose, which, though single, is in much esteem for its blossom. Its leaves are of a scarlet color within, and on the outside of a pale yellow.

The sweetest and most useful of roses is the Damask, which in Lord Bacon's time, was observed by him not to have been

in England above one hundred years. Of this variety, there is one that is a perpetual bloomer, continuing with new blossoms, until it is checked by the frost. This seems to be the rose that Pliny mentions as growing in Spain, and flowering all winter. It is called the Monthly rose.

The Damask Provence rose differs from the ordinary Damask in being very double and fair, but not so sweet as the other.

The Damask rose, with some of its leaves marked with a faint blush, is usually termed the York and Lancaster rose, because it was the first variegated rose that was known after the union of these two Houses.

But the best of Damask roses, is that which is completely striped, usually called Mrs. Hart's rose. It is a very plentiful bearer, the flowers very sweet and beautiful, so that a garden is very defective without it.

There are two roses that bear the name of Belgick roses; the one of a blush color, bearing many flowers at the end of a branch, and those very sweet. This is esteemed the greatest bearer of all roses. The other is of a red color, very double and beautiful, and held in great esteem.

The ordinary Red rose is generally known; the Hungarian rose is little better, and the Red Provence is esteemed only for its fairness, as the Dwarf red rose for its humility.

The rose that best illustrates the whole kind is the *Rosa mundi*, being red, elegantly striped with white, the two different colors plainly distinguishable at a distance. Its scent is weak, but that defect is supplied by its beauty.

The Marbled rose is a very fair red rose, fully and curiously marked or dappled with dark colors, causing it to resemble marble. It deserves a place among the best roses.

The Velvet rose is the darkest of all roses, its leaf bearing a great resemblance to velvet. It is not very full, except in some cases.

The Frankfort rose yields large shoots, and forms a good stock for budding the yellow rose. The flowers are not much to be commended, nor the flowers of the rose without thorns, called the Virgin rose.

The Cinnamon rose is in esteem only for its sweet scent and early flowering, being the earliest of the roses.

The common White and Blush roses are generally known. The *Rosa Canina*, so called from its whiteness, like a dog's tooth, is not so pure a white as the common White, but is esteemed because it is more full.

The double Musk roses flower later than any other kind, except the Monthly rose. Their scent gives them their name, and they deserve a place in the garden. The single kind, called the Spanish Musk rose, is not of much value. One of the Musk roses retains its leaves all winter—hence called the Evergreen rose. Its flowers are single, but highly prized by the curious.

The common Sweet Brier, for its excellent odor in the spring, deserves a place near the windows; but the kind that bears double flowers is still better, and is one of the best of odoriferous plants.

The Guelder rose, or rather Elder rose, is a flower of another family, resembling the Elder. These are the principal roses enumerated by the author, and the only ones in his opinion worthy of attention in his day.

POMOLOGICAL GOSSIP.

NEW STRAWBERRIES.—Quite a number of new seedlings have been introduced this year. Mr. Prince of Flushing has six or eight; Mr. Huntsman of the same place, three; Mr. A. S. Fuller, Brooklyn, three; and Mr. Burgess of Glencove, four; then there is Russell's Great Prolific, which measures four and a half inches—not in diameter—in circumference, about as large as a small strawberry; Meade's Seedling, and some others, something like twenty in all. What the peculiar merits of each are, and how they differ to make them valuable, we are not informed, except in regard to Mr. Prince's. The ease with which fine seedlings are raised corroborates our statement, made some years ago, that if the seeds are saved from the best berries, anybody can raise seedlings just as good as these new sorts; in fact it is quite as safe to do so as to plant these named varieties. We raised 100 varieties in

1833, nearly all of which were as good as any that have been raised since that time—a period of nearly thirty years—but as they possessed no remarkable qualities we threw them all away but the Hovey and Boston Pine, the best thing that can be done with every new seedling, unless superior in its combined merits to any existing strawberry.

HOVEY'S SEEDLING STRAWBERRY.—At the magnificent exhibition of strawberries before the June meeting of the Pennsylvania Horticultural Society, the Gardeners' Monthly says, no one variety attracted more attention than the plate of Hovey's Seedling, exhibited by Mr. Haman. Taking beauty, size, and excellence together, they were not surpassed by any of its more modern competitors. In size alone, or quality alone, others beat it. Trollope's Victoria, that gained the prize, for instance, though superior in flavor, and equal in size, had none of that real strawberry color which gave Hovey's the great charm. It is remarkable that so old a strawberry should stand its ground so well.

WILSON'S ALBANY.—The Gardeners' Monthly, in giving an account of the exhibition of strawberries before the Pennsylvania Horticultural Society, calls this celebrated variety hard names. It says, "as we watched the motions of the committee accordingly as they had ventured on a SAVAGE PICKLE like Albany Seedling, or a regular mouth-water like Hooker's Seedling, we pitied the gentlemen who had been made the victims of circumstances by being caught on such a committee." This is out of order, and friend Meehan must be more choice in his epithets hereafter.

REJECTED FRUIT.—The American Pomological Society will have to strike out its rejected list of fruits and restore them where they seem to belong, at the head of the lists. Trollope's Victoria, rejected, was thought the best by the Pennsylvania Horticultural Society. Omer Pacha, old and rejected, the Rural New Yorker puts down among the new kinds which promise well. Myatt's Eliza, rejected, Mr. Knox grows under the name of British Queen.

WHAT IS A LARGE STRAWBERRY?—As there seems some doubt in regard to what may be deemed a large strawberry it may be well enough to record the size of some of those here-

tofore produced. The Rural New Yorker says the Trollope's Victoria, raised by a cultivator in Rochester, were so large it took 35 to fill a quart. At the Strawberry Show in New York, it was stated that the berries of the Triomphe de Gand measured six inches in circumference, and THREE berries weighed TWO OUNCES.

Now in regard to the number of berries to fill a quart, the late Capt. Josiah Lovett exhibited a full quart of Hovey's Seedling containing only twenty-eight berries; and as to size and weight, the following is from the report of the New York Farmers' Club, for 1851, an institution well known:—

“At a late meeting of the Farmers' Club, Mr. George S. Riggs of Baltimore, who visited the farm of Mr. Pelham, Vice President of the Institution, in company with Judge Meigs and Gen. Chandler, stated that Mr. Cunningham, the gardener, showed them a basket of Hovey's Seedling that he had picked to present to a neighbor. Thirty-nine berries were laid on a flat surface and covered a space of nine inches by eleven, that is one to every $2\frac{1}{2}$ inches. I saw one weighed and found it weighed TWO OUNCES, and was EIGHT AND THREE EIGHTHS inches in circumference.”

Strawberries 5, $5\frac{1}{2}$, and 6 inches are by no means extra large. The ordinary size of good specimens of Admiral Dundas is 6 to 8 inches; Empress Eugenie, 6 to 8 inches; La Constante, 6 inches, and Sir C. Napier, 6 inches. EIGHTEEN berries of Admiral Dundas, exhibited by us before the Massachusetts Horticultural Society, weighed just ONE POUND.

AUSTIN SEEDLING.—Mr. Barry has alluded to this variety in such fitting terms that we hardly need say more; still, for a new variety of somewhat pretentious character, we must say it has fallen lamentably below the standard of a good berry. We do not know a variety of recent introduction which has so few merits. It is of a dirty faded color, soft in the flesh and insipid, without flavor, worse than the sharp acid of the Wilson. It has no redeeming quality. Mr. Barry's communication was, we suppose, misprinted: he undoubtedly intended to say that it showed “well as to size and QUANTITY,” not quality, a material difference.

EMPRESS EUGENIE.—This has proved a very remarkable berry—unusually large, exceedingly good—coxcomb shaped and dark colored, but every way excellent. Our plants, though hardly established, bore very abundantly, and the fruit measured six inches in circumference. The following notice of this and other varieties, by an English cultivator, in the *Gardeners' Chronicle*, agrees with our own experience, and we have no doubt it will become one of the most popular of foreign strawberries:—

“Having heard from many quarters that there has been a partial failure of the strawberry crop this year, I may just say that here it has been the finest I ever remember. The quantity of fruit has been enormous, and the quality everything that could be desired. Sir Charles Napier has been splendid, and I consider this one of the finest, if not the very finest strawberry yet sent out. I gathered the first fruit on the 8th of June, and there is still a large quantity on the same beds. *La Constante* is also a first-rate kind and a great cropper here, and so is *Ingram's Rifleman*, which has borne fruit this year $3\frac{1}{2}$ inches in diameter. *Oscar* produced a large quantity of fine handsome fruit, but the flavor is not good. *Empress Eugenie* is a great bearer, and the fruit remarkably fine; and although the flavor is not quite equal to some others, I consider it the best of the very large kinds. To show you how strong strawberries grow on our soil, I send you a plant of this variety, a last year's runner; all the plants are as nearly the same size as possible. The runners were pegged down in the ground, and planted in the beds $2\frac{1}{2}$ feet apart every way in August last, and I believe each plant has borne about half a peck of fine large fruit this season. The foliage was much injured by the severe frost in April. No manure was dug in when the runners were planted, but the rotten dung from an old hotbed was thrown over the beds in March.”

NEW STRAWBERRIES.

BY WM. R. PRINCE, FLUSHING, L. I.

As you have always manifested a lively interest in regard to all really estimable new varieties of the strawberry, always judiciously discriminating between them and the sour trash that have been palmed upon the public, I send you descriptions of some new varieties that have been scrutinized by Professor Huntsman and myself, and which cannot fail to command the approbation of amateurs. The forthcoming Patent Office Report contains descriptions of our whole collection of 250 varieties.

H. denotes Hermaphrodites, P., Pistillates.

ANGELIQUE, new, large, conical, bright scarlet, juicy, excellent flavor; plant vigorous, hardy, and productive.

BEATRICE, H., large, obtuse cone, deep scarlet, sweet, high flavor; plant hardy, vigorous, and productive.

PRINCEPS, new, very large, long cone, dark crimson; flesh scarlet, sweet, fine flavor, very estimable; plant vigorous and productive.

LENNIG'S WHITE PINE, H., very large, rounded, white, tinged with pink, buttery, sweet, excellent flavor, ripens early, is a true Pine and not a seedling of the Wilson, as has been stated; plant exceedingly vigorous, large, thick, broad foliage, very hardy, and productive. It must be grown in stools. This will prove a very interesting variety to amateurs, and is the finest of all the White varieties.

LADIES' AROMATIC, P., new, an enlarged seedling of the Ladies' Pine, round, pale scarlet, sweet, aromatic, exquisite flavor; plant hardy, productive.

PAULINE, P., new, very large, obovate, bright scarlet, beautiful, very juicy, acidulate, good flavor, rather late; plant vigorous, hardy, and productive.

WELCOME, H. This is deemed the greatest acquisition for an early market berry. It, with the Primate and Longworth's Prolific, are the only hermaphrodite varieties, of which every flower perfects a fruit. It is five days earlier than the Early Scarlet, and Jenny Lind, of more than double

the size of the former, and one and a half times the size of the latter, and produces a far greater crop than either of them. Form a regular cone, most brilliant, clear scarlet, firm for long carriage, never rots by rains, berries always clean, flesh white, sweet, very juicy, with a very pleasant high sprightly flavor; it is a beautiful berry, with a short neck, and detaches very readily from the hull, none more so; plant very vigorous, hardy, and exceedingly productive; foliage pale green. It is certainly destined to supersede completely every other early variety, both for the market and for family gardens.

SULTANA, H., early, very large, some monstrous, light bright scarlet, obtuse cone; flesh pure white, sweet, juicy, fine flavor, showy, beautiful, an admirable berry for market, to follow the Welcome; plant very hardy and vigorous, and highly productive; foliage deep green.

EUREKA, P., new, large, regular cone, light scarlet, beautiful, firm, very juicy, sweet, high flavor, excellent; plant very vigorous, hardy, and exceedingly productive. This is the most unexceptionable amateur strawberry ever produced in America, and in sweetness and flavor vies with the Pines.

EUGENE, H., rather large, conical, crimson, with a neck, very sweet, fine flavor, rather late; flower has very small stamens; plant vigorous, productive.

SEMPRONIA, H., very large, obtuse cone, bright deep scarlet; flesh white, sweet, very good flavor, a remarkable berry; plant very vigorous, with tall and broad pale green foliage; productive. A seedling of the Hovey.

PRINCE'S LARGE CLIMAX, P., new, large, obtuse cone, bright scarlet, showy, sweet, juicy, firm, fine flavor, an admirable berry; plant vigorous, hardy, very productive. The old Prince's Climax is of the Iowa family, a very showy berry, but more acidulous.

SCARLET MAGNATE, P., very large, the heaviest American berry, frequently $1\frac{1}{2}$ inches in diameter, oblate, bright scarlet, sweet, juicy, very good flavor, a splendid berry, the most solid of all for long carriage to market; plant very hardy and vigorous, with large broad foliage, very productive. It

should be grown in rows or stools. It requires a strong fertilizer, such as the Ophelia.

BENICEA, P., new, very large, obtuse cone, crimson; flesh white, firm, sweet, fine flavor, estimable; plant vigorous, productive.

ERNESTINE, P., new, very large, oblong cone with a neck, light scarlet; flesh scarlet, very juicy, sprightly, fine flavor; plant vigorous, very productive. Second only to Eareka.

THE AMERICAN RHODODENDRON.

BY LEANDER WETHERELL.

OF the many indigenous flowering trees and shrubs of North America, none is more attractive than the *Rhododendron maximum*, called Great Laurel by Prof. Gray and Dr. Torrey. Besides this, Prof. Gray, in his Botany of the Northern States, describes *R. catawbiense* and *R. lapponicum*. Wood, in his last edition of the Class-Book of Botany, *R. punctatum*, *R. ponticum*, *R. arboreum*, and *R. indicum*. Loudon adds, *R. albiflorum* and *R. californicum*.

R. CATAWBIENSE, called Catawba Rose-Bay, is known by its oval leaves, rounded at both ends, smooth, pale beneath, from three to five inches in length; corolla broadly bell-shaped, and of a lilac-purple. It grows from three to six feet in height, and is found in the Alleghany Mountains and southward.

R. LAPPONICUM, called Lapland Rose-Bay, is known by its dwarfish appearance; leaves elliptical, obtuse, half an inch long, and dotted on both sides, like its branches, with rusty scales; flowers in leafy terminal clusters; corolla bell-shaped, purple color, and dotted. It is found in the mountains of Maine, New Hampshire, and New York, and grows to the height of eight or ten inches. It is called Procumbent Alpine Rose-Bay by Torrey.

R. PUNCTATUM, called Dotted-leaved Rose-Bay, is known by its oval-lanceolate acute leaves at both ends, ferruginous and dotted beneath; corolla narrow, bell-shaped; segments wavy.

It is a handsome shrub, growing to the height of from four to six feet on the high grounds of the Carolinas and Georgia. Flowers small.

R. PONTICUM, called Common Rose-Bay, is known by its oblong-lanceolate leaves, attenuated towards each end, smooth, and slightly paler beneath; corymbs short and terminal; corolla campanulate-rotate. Further examination shows this to be an exotic, introduced from Asia Minor.

R. ARBOREUM, Tree Rose-Bay, is known by its lanceolate, glabrous leaves, dotted beneath; flowers densely corymbed; corolla lobes with crenulated, curled margins. It is a beautiful tree or shrub, introduced from the Himalaya Mountains. Flowers purple, red, white, cinnamon color.

R. INDICUM, or javanicum, called Japan Rose-Bay, is known by its cuneate-lanceolate leaves, acuminate at both ends; flowers scarlet, purple, crimson, flame color. In cultivation it is very brilliant. It is an exotic.

R. ALBIFLORUM, White-flowered Rose-Bay; leaves lanceolate acute, clothed with rusty tomentous beneath.

R. CALIFORNICUM, or **R. calendulaceum**, California Rose-Bay, is not described in any work at hand.

R. MAXIMUM, Great Laurel of both Gray and Torrey, also of Darlington; so called, from its great size and evergreen leaves. As described by Prof. Gray, its leaves are elliptical-oblong, or lance-oblong, acute, narrowed towards the base, very smooth, with somewhat revolute margins; corolla bell-shaped, an inch broad; pale rose color or nearly white, greenish in the throat, on the upper side, and spotted with yellow or reddish. It is a *habitat* of deep woods, sparingly in New England, New York, and Ohio, but very common along shaded water-courses in the mountains of Pennsylvania and southward. It grows from six feet to twenty feet in height; leaves very thick, and from four to ten inches in length. Its corymbs are from fifteen to twenty flowered, surrounded by dark evergreen leaves. It is a splendid flowering shrub, says Wood, in his botanic description of it. The flowers, he says, are pink or rose-colored, varying to white, with purple dots, spotted sometimes with yellow, and they are from one and a half inch to two inches in diameter. The shrubs flower from June to August.

Rhododendron, is from two Greek words; *rhodon*, a rose, of *dendron*, a tree, the name having reference to the terminal bunches of flowers which are rose color. This is true of other species besides that of *maximum*, the one now under consideration, the Great American Rhododendron of Linnæus.

Dr. Bigelow, in his *Florula Bostoniensis*, says of the Great Laurel: "A magnificent flowering shrub, common in the mountainous regions of the Middle States, but more rare towards the north. The rhododendron of the Northern States is a large, straggling shrub, very irregular in its growth. The bark is of a grayish color, cracked and broken. Leaves in tufts at the ends of the branches, evergreen, coriaceous, on round, fleshy petioles, oblong oval, entire, revolute at the edges, pale underneath. Both leaves and petioles when young are covered with a light woolly substance. The flowers form a terminal thyrus or cluster immediately above the leaves, the stalks and calyxes of which are covered with a glutinous pubescence. Previous to its expansion, the whole bud forms a large compound bud, resembling a strobilus or cone, each flower-bud being covered by a rhomboidal bract, which falls when the flower expands. Calyx small, of fine unequal obtuse segments. Corolla monopetalous, funnel-shaped, with a short tube, the border divided into five large, unequal segments, which are white, shaded with lake, the upper and largest having a collection of orange-colored spots at its centre. Stamens declinate, unequal; filaments white, thickened, and hairy at base; anthers two-celled, opening by two pores at top; pollen white. Germ ovate, hairy, glutinous; style declinate, equal to the longest stamens, thickened upwards; stigma a rough surface with fine points. Capsule ovate, obtusely angular, five-celled. Seeds numerous, and minute. It is found in a swamp at Medfield; also near Portland."

Michaux, in his *North American Sylva*, calls it Mountain Laurel, and says: "It presents itself in the form of a shrub of less than ten feet in height; but sometimes rises to the height of twenty or twenty-five feet, with a diameter of four or five inches, and is diffused throughout a large portion of the United States, and is so remarkable for the beauty of its

flowers, that I am induced to describe it." After remarking that it is rare north of the Highlands on the Hudson, he adds that "it is abundant in the Middle States, particularly so, in the mountainous tracts of the Southern Section. It is found on the borders of creeks and rivers, and in Virginia it forms impenetrable thickets. Shade and humidity seem indispensable for its growth, and therefore it flourishes among the White Cedars in the gloomy swamps of Lower Jersey, where the surface of the miry soil is carpeted with moss ever surcharged with moisture. This shrub has long been known in Europe; but as it requires a cooler and more shady exposure and more assiduous culture than the *R. ponticum*, a native of the Alps and the Pyrenees, it is less extensively multiplied."

Loudon, in his *Arboretum et Fruticetum*, says, it is a native of North America, and is found from Canada to Carolina, on mountains, near rivulets and lakes, upon rocks and barren soils, where it flowers nearly all summer. It was introduced into England in 1736, but is not of easy culture, nor does it flower freely in British gardens. Though introduced in 1786, by Peter Collinson, it did not flower till 1756. It is for sale in English nurseries. Browne adds, that it has been introduced into many gardens on the Continent of Europe. There is said to be one in the Bartram Botanic Garden at Kingsessing, near Philadelphia, that is fifteen feet high, with a top forty-five feet in circumference.

G. B. Emerson, in his "Trees and Shrubs of Massachusetts," says, the large, conical, flower-buds of the *R. maximum* are formed in September. Just before expanding they are one or two inches long and an inch broad. He further remarks, that "it found as far north as Standish, on the borders of Sebago Lake, Maine, near Portland; also, in great abundance in an extensive swamp in Medfield, near Charles River, and in a small swamp in Attleborough. Everywhere it delights in deep, moist shades. In the Northern States, it occurs only at intervals, in protected situations."

Mr. Earle, for many years editor of the Worcester Spy, informed the writer, that it formerly grew in Leicester, near Worcester, where Mr. E. was born and lived in his boyhood. It also was found in Hopkinton, New Hampshire.

Pursh describes two marked varieties, *R. album* and *R. purpureum*; and a third has been added, called *R. hybridum*. The first, with pure white flowers, is rare. The second is found in Virginia and Carolina, bearing large purple flowers, and growing to the height of twenty-five feet, and the stem eighteen inches in diameter. Its leaves are triple the size of the ordinary ones of the true *R. maximum*. The third is supposed to be the product of the fertilization of the common white glaucous-leaved Azalea with the pollen of the *Rhododendron maximum*, says Browne. The flowers of this variety are very fragrant, a circumstance which entitles it to a place in collections.

The wood of the American Rhododendron, or Great Laurel, is hard, compact, and fine grained, but not equal to that of the *Kalmia latifolia*, called Spoonwood, Calicobush, and Mountain Laurel. Owing to its scarcity, however, it has gained no particular celebrity for use in the arts. The leaves are sudorific and narcotic, and have been used in the preparation of a specific for the cure of rheumatism. This species, both in Europe and America, owing to its delicately-colored flowers, has gained a high reputation for purposes of ornamentation. Its flowers combine the beautiful red and white tints of the rose and the apple blossoms, which produce a striking and most agreeable contrast with its smooth ever-green leaves.

Rhododendrons are propagated by layers and seeds. "The seeds should be sown in early spring, in flat pens of peat soil, and very thinly covered; they may then be set in a close frame, or at the front of a hothouse, till they come up, watering slightly when dry; as soon as they are high enough to be laid hold of, they must be pricked out in pots, and placed in a shady place; they may stand in a frame a few days till they have taken root, but must not remain long. The small kinds may be propagated by cuttings taken from the young wood and planted in sand under a bell glass."

Don says: "Of all the genera in existence, the Rhododendron—in which he includes the Azalea—comprises the most handsome, elegant, and showy shrubs for adorning shrubberies or planting singly on lawns."

"In Asia," says Hooker, "the *Rhododendrons* grow at an elevation varying from 8,000 to 16,000 feet; but especially between 10,000 and 14,000 feet the genus prevails; several species comprise three-quarters of the bulk of vegetation in those altitudes. The wood supplies the natives with fuel, and from its tough nature and property is easily worked into many domestic utensils, such as spoons, bowls, &c. The bark is used like that of the birch of the arctic regions; and the leaves serve as plates and wrappers for butter, cream, cheese, &c. At the elevation of 13,000 feet, the snowy mountains glow with the blood-red blossoms of the *R. fulgens*, whilst the beauty of the *R. campanulatum*, and the great elegance and delicacy of the *R. campylocarpum*, excite the more admiration from their being found in the region of fog and rain. It is insisted that many of the so-called species are of hybrid origin, but this is by no means clear, nor can it be readily ascertained. Some species are parasitical, being found on trees, but these also have been found growing even in clayey soil. They readily grow in vegetable mould." The *R. ciliatum* has wintered in the open air, says Loudon, and the *R. javanicum* is one of the most beautiful yet introduced. It requires the protection of a greenhouse.

Since the above was written, the writer has twice visited the Rhododendron Swamp in Medfield, which is about an hour's ride from the city, on the "Boston and New York Air Line Railway." It is a rare and most attractive spectacle to lovers of floral beauty. The writer was informed by the Rev. C. C. Sewall, of that town, and a member of the Massachusetts Board of Agriculture, that the Rhododendron Swamp, situated on Charles River, is of about fifty acres in extent. The growth of timber thereon consists chiefly of white pine, hemlock, maple and birch. The rhododendron shrubs are from five to twelve feet in height. In profusion of flowers, the present season has been rarely excelled. Numerous visitors have gone thither from the city this summer, to gratify their love for the beautiful in nature, and have returned feeling themselves amply repaid for their excursion.

In conclusion, the writer would urge the more general introduction of this most beautiful flowering shrub into cultiva-

tion. The difficulties that early attended its transplanting for ornamental purposes, have, in a measure, been overcome. Is it hoped, therefore, that it will soon become as common as it deserves to be, in view of its very remarkable floral beauty.

IN-DOOR GARDENING.

FROM THE GARDENERS' CHRONICLE.

THERE are so many people who are fond of Ferns, that I think to-day perhaps I may venture to name a few of those that I have found to do very well in rooms, and to look very pretty in the cases there. I ought to premise, however, that my fern cases are heated, or capable of being so, for till this was done the fronds were often too apt to damp off, and to those who have already got unheated plant cases I would advise some means, by the use of tin or stone bottles of hot water, of giving a little warmth to change and circulate the air when it gets too damp.

I have found the various kinds of *Pteris* and *Davallia* to be almost the easiest grown and most pretty ferns when they are not wanted to be very large.

Pteris argyræa, *P. tricolor*, *P. cretica albo lineata*, *P. tremula*, and *P. serrulata* are amongst those at present most thriving in my own room. The *P. argyræa* and *P. tremula* grow extremely quickly and will very speedily mount up to 2 feet high, putting up quantities of beautiful green fronds; contrasting very well in their dark divided leaves and their wide white-striped fronds. *P. tricolor* is far more hard to grow; it requires a warm and very light position, and is much injured by wet standing on the leaves, which are always discolored by it—indeed I fancy it does best when the leaves are seldom wet at all. All these plants seem however to thrive exceedingly well in those cases which by being closed at night give a little dew; this dew however must on no account whatever be allowed to condense and fall upon the leaves. I do not find frequent watering answer. The fibre or sand that fills the box being damp, we may trust a good deal to the dew

for refreshing foliage, and to the sand for parting with moisture slowly; I seldom therefore water till the surface begins to be rather dry, except just over the heating apparatus when it is in frequent use, so as to dry up the sand that covers it.

The Davallias, again, are most charming plants. I find *D. dissecta* or *D. decora* to answer about the best, and there need be no heat at the roots at all. All my *Pteris*, therefore, I keep at the warmer, and all my Davallias at the cooler end of my case.

The *Adiantums* do best at the warmer end, where *A. formosum*, *A. cuneatum*, and *A. Capillus-veneris* grow extremely well. The Maiden's Hair grows marvellously in cocoa-nut stuff, but though it likes at times a moist dewy atmosphere for a time, or a little of the softest syringing, it does not like anything like a continued close atmosphere, and damps off at once if we persist in giving it. It should be remembered how constantly it grows in perfectly airy places, though under the spray of waterfalls or in the splash of fountains, or on the sides of cliffs looking over the ocean.

The *Allosorus crispus* is another charming little fern that grows quite delightfully in a warm shady corner, kept in a small pot, planted in sand and cocoa stuff. I should be almost afraid to say how many new plants I made of mine last year, the little offshoots coming up incessantly

The *Dennstætia adiantoides* is also a first-rate fern to grow, one set of new fronds appearing as the first turn brown and are cut away.

With ferns I think that cutting off damaged fronds is a very important point, and not the least advantage is the appearance of health maintained by this precaution. I have found charcoal drainage covered with moss, and then a soil composed of peat, sand, and cocoa-dust, to be the most generally suitable for all the ferns above mentioned. They can be either left in sunk pots or planted out in a fern case.

A means was explained to me the other day of forming a charming movable border of green moss by planting *Lycopodium denticulatum* in squares or long strips of peat, so that they can be raised and laid down at pleasure. A very pretty plan is also described at length in the useful little

"Book of Ferns," just published by Messrs. Hooper—that of lining a fern house with galvanized wire netting, and forming by this means a regular wall of verdure. I have been told by persons who have adopted this mossy lining, that frequent strong syringing full upon the walls, with a syringe so fine as to be quite a dust of water, is the most effectual means of keeping the peat moist. Great care must be taken to prevent it from ever drying up entirely. When ferns are kept in pots in a sitting-room, their only hope of thriving is in damp double pots, with very frequent gentle syringing or bedewing. These hints are, however, meant quite for those who are beginning to grow ferns, as (with the sole exception of the beautiful *Pteris tricolor*) all that I have named are of the very easiest and simplest kinds to manage.

FLORICULTURAL NOTICES.

THE PELARGONIUM.—Seldom, if ever, has there been a season in which the growers of Pelargoniums have had such important accessions to the ranks of new varieties, as those which have taken place during the present summer. Our metropolitan flower shows have, as it were, swarmed with new forms of this showy and attractive flower, many of them possessing extraordinary merit. No doubt we owe these results in part to the good foundation laid by two eminent raisers, who have but a short time since passed from amongst us, the chief honors of the season having been borne away by the ever-to-be remembered names of Beck and Foster; but a considerable number of excellent sorts have also been brought forward by Hoyle, another veteran in the same field of labor, who we may hope may long be spared to delight us with many such novel forms of beauty; and still further contributions have been made by Turner, Dobson, Bull, Fraser, and others.

The most remarkable feature, perhaps, to be observed, has been the vast improvement effected in what are called the Spotted varieties, a race which was introduced but a few

years ago by the continental growers, and which is remarkable chiefly for the additional deeply-marked spot on each lower petal. The varieties of this character were not originally at all remarkable for possessing the properties in which florists delight. Indeed, these spotted flowers when first they found their way amongst us were decidedly poor, lean, and ill-favored. The advance which has been made already in flowers like Monitor and Landseer, shown by Mr. Nye, from the late Mr. Foster's garden, is something marvellous. These show plenitude of size, and with it the still more desirable quality of rotundity, by which the parts become well filled out, besides which they possess the richest coloring, in Monitor of a lighter, in Landseer of a somewhat deeper carmine rose—marked in both with dark well-defined blotches of maroon, Landseer having in addition a dash of crimson veining thrown over its surface. Both these varieties have the colors well set off by a white throat, and both have the upper petals covered by a dark maroon cloud. Caliban, from Mr. Beek's garden, has perhaps rather more of novelty, though we should say less of quality. On a ground color of pale blush-lilac, strongly contrasting with the maroon cloud on the upper petals, occurs a large veiny patch of deep purplish crimson, in the midst of which is set a dark maroon spot. There is a striking contrast of color in this flower which compensates for a little deficiency in other proprieties. Altogether these are three decided acquisitions to the spotted class.

Gradually there has sprung up in our midst a set of varieties, which may be called Subspotted, the chief peculiarity of which is that the lower petals, wherein, as is well known, the ground color of the flower is most commonly displayed quite pure, are more or less dashed with deeper colored veins, as well as marked by a slight spot by no means sufficiently definite to bring them within the spotted class. The new varieties in this subspotted section comprise two which, in our estimation, are the gems of the season, namely, Belle of the Ball and Royalty, both of them Mr. Foster's flowers. These have a very pure white throat, beyond which breaks in quite abruptly the ground-color with its spot and veins. In Belle of the Ball, which reminds one of Perdita and Beauty of

Reading, but is many degrees better than either, the color is a light carmine rose with markings of crimson. In *Royalty* the ground color is a more decided rose with deeper crimson markings. These flowers are both full-sized, and have all the desired meritorious features of form and substance, while in respect to color the intensely dark upper petals, the broad pure white throat, and the richly variegated markings of the lower petals, place them amongst the gayest of the gay. *Merrimac*, another of the set, and also one of Mr. Foster's flowers, is remarkable for its large size, its ground color being rose, with the lower petals very much veined, and slightly spotted with maroon-crimson. This also has intensely dark top petals and a white throat, so that the colors are well set off, and in respect to form it ranks amongst the best.

The Purples, or more strictly the Purplish-roses, have been this year replenished by Hoyle's *Lord Palmerston*, Beck's *Fidelia*, and Foster's *Improvement*, all of which are good. The first-named, however, is our favorite, and a charming flower it is, standing out thoroughly distinct in colors from the reds and roses which are now the more common shades among the deeper colored sorts.

Among the roses there are numerous acquisitions rendered desirable by improved qualities in respect to size, form, or coloring. It is difficult to make a selection out of the large number which has appeared, but we think the preference, taking variety of character into account, may fairly be given to Hoyle's *Royal Albert*, Beck's *Regina formosa*, and Canopus, and Foster's *International*. The *Royal Albert* is a noble flower, one of the largest varieties yet obtained, finely shaped, of a clear and delicate carmine rose below, and having a clouded maroon spot above, not, however, occupying the whole width of the upper petal, but passing off into crimson towards the outside, and bordered by a narrow belt of rose color, the throat being white. *Regina formosa* is one of those with the upper half almost wholly dark maroon, bordered, however, by a narrow distinct belt of rose, while the throat is distinctly white, and the lower petals carmine rose, very slightly veined; its form is perfect, and its color remarkably lively and effective. *International* is something in the same

way, but a trifle larger, and of a different shade of rose, as well as more motley in the slight venation of the under petals. Canopus is exceedingly fine in form, and differs from the foregoing in having on the top petals a small deep maroon spot surrounded by a wide belt of the ground color. All these have the throat pure white, which adds very much to their beauty. Other fine flowers of this set are Hoyle's Colossus, Hoyle's Olio, which is something in the way of International, and Beck's Cynosure, which is in the style of Canopus, but less decided in the marking. Even these do not by any means exhaust the list of good novelties in the rose-colored class; but we must stay our hand.

Again, among the Crimson-reds we have some very fine additions. This class has indeed been well worked out in consequence of prizes having been for a series of years offered for varieties with flowers showing the nearest approach to scarlet. As a general rule the crimson-reds have a purplish tinge more or less evident in the throat. Of this set, then, Foster's Illuminator and Beck's Vesuvius are the brightest, both of first-rate shape, bright carmine scarlet, the former with an almost black clouded blotch passing off to crimson towards the scarlet edge, the latter almost wholly dark with a narrow scarlet belt. Then come Foster's Conflagration and Beck's Ardens, the first of them crimson, and the darkest of the series, clouded in the same way as Illuminator; the second rather more of a rosy-crimson, but almost wholly clouded on the top petals, as in Vesuvius. Beck's Fervens is somewhat smaller, but of a very telling bright rosy-crimson, and the blotch is comparatively small, leaving a broad margin of the bright ground color. Beck's Bellatrix is another good crimson-rose, with the clouded blotch becoming paler and dashed with crimson towards the outer margin. Probably among these, Conflagration, Illuminator, and perhaps Vesuvius, possess the highest qualities. We must further confess to a liking for Foster's Souvenir, on account of its lower scarlet petals being veined with crimson, which gives it a distinct character in this group; but it seems to have been passed over by the censors at the exhibitions.

The best of all the Light-flowered sorts which have been shown, is without doubt Beck's Eurydice, a charming sort with pearly white lower petals, and deep sanguineous crimson upper petals bordered with white, shape and every property combining to render it first class. We believe it is not to be sent out this season. Beck's Esperance is another, something in the same way, but not quite equal to it in our opinion; and Beck's Ophelia again is another of about the same degree of merit as the last, but with the maroon cloud passing off towards the edge to a purplish rather than a crimson tint. Beck's Nymph is also a pretty variety of this class. Beck's Oriana again is a very fine light flower of a somewhat different stamp, large and finely-proportioned, with the lower half pinkish blush, and the upper part maroon passing near the edge into orange-red, the extreme margin being a delicate pinkish rose. It corresponds in character with Royal Albert, but is many degrees paler, and therefore would form a very desirable companion flower. Nothing of importance in this light-flowered series has been observed from other raisers.

Finally, of the Whites, what we believe to be a very fine novelty is Dobson's Queen of Whites, the ground color of which is pure, and the marking bold and rich, but it was overlooked in the crowd of seedlings which were huddled together on a high stage at Kensington on the 11th of June, decidedly *the* show of the year for Seedling Pelargoniums, and we missed the opportunity of observing it closely when it subsequently appeared in public.

We may supplement this brief memorandum of the English seedlings exhibited in 1862, by mentioning a very striking newly-imported French variety called Theophraste, which has well-formed flowers of a brilliant carmine, and is altogether a very effective decorative sort; and Silver Swan, a lovely pale blush with small pencilled spot on the top petals, is equally desirable. To sum up, the best varieties among the many which have appeared are in our opinion the following, and these we believe will disappoint no one who may grow them, if they prove at all like what they have been this year:—

Of Spotted sorts.—Monitor, Landseer, Caliban.

Of Subspotted sorts.—Bell of the Ball, Royalty, Merrimac.

Of Purples.—Lord Palmerston.

Of Roses.—Royal Albert, Regina formosa, Canopus, International.

Of Crimson-reds.—Conflagration, Illuminator, Vesuvius.

Of Lights.—Eurydice, Oriana.

Of Whites.—Queen of Whites.—(*Gard. Chron.*)

636. *PHYSURUS MACULATUS* Hook. SPOTTED *PHYSURUS*.
(Orchideæ.) Ecuador.

An orchideous plant; growing six inches high; with whitish flowers; appearing in winter. *Bot. Mag.*, 1852, pl. 5305.

A rather pretty species, which flowered in November last, growing six or eight inches high, with short spikes of whitish flowers. The leaves are narrow, deep green, spotted with white. (*Bot. Mag.*, April.)

637. *CEROPEGIA GARDNERI*, Thwaites. MR. GARDNER'S *CEROPEGIA*. (Asclepiadææ.) Ceylon.

A stove climber; growing six feet high; with spotted flowers; appearing in winter; increased by cuttings; grown in light peaty soil. *Bot. Mag.*, 1852, pl. 5306.

One of the prettiest of the Ceropegias, having quite large flowers, which are white, and very conspicuously spotted with brown; appearing in clusters at the axils of the leaves. It is very ornamental, and worthy of cultivation. (*Bot. Mag.*, April.)

638. *SCILLA BERTHELOTTI* Webb. BERTHELOTT'S SQUILL.
(Liliaceæ.) Africa.

A hothouse bulb; growing a foot high; with pink flowers; flowering in December; increased by offsets. *Bot. Mag.*, 1852, pl. 5308.

A rather insignificant species, found in the tropics, only four degrees from the Equator, all the other species being from temperate climes. It is only interesting on account of its locality. (*Bot. Mag.*, April.)

639. *BEGONIA PRISMATOCARPA* Hook. PRISM-FRUITED *BEGONIA*. (Begoniaceæ.) Western Africa.

A greenhouse plant; growing four inches high; with yellow flowers; appearing in winter; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1852, pl. 5307.

"Though wanting in floral beauty, it is nevertheless," says Dr. Hooker, "a very interesting plant." It was found in the mountain regions of tropical Western Africa, growing on

rocks and trees at an elevation of 3000 feet. It grows only a few inches high, with small leaves, and clusters of light yellow flowers. It has an elongated four-celled four-sided capsule, a quadripartate style, and capitate stigmas, and will probably constitute a new genus among Begoniaceæ. (*Bot. Mag.*, April.)

640. *BOLBOPHYLLUM RHIZOPHORÆ* Lindl. MANGROVE BOLBOPHYLLUM. (Orchideæ.) Africa.

An orchideous plant; growing four inches high; with crimson flowers; appearing in spring and autumn; increased by offsets. *Bot. Mag.*, 1832, pl. 5308.

"A lovely little plant, if minutely examined, as the structure of the flowers entitles it to be." It was found growing on mangroves in the Nun River, by Mr. Barter of the Niger Expedition, and living plants sent to Kew, which flowered in April and October, 1861. The plant is very small, and the flowers appear on long drooping spikes. They are of a deep crimson. (*Bot. Mag.*, April.)

641. *CLOMENOCOMA MONTANA* Benth. MOUNTAIN CLOMENOCOMA. (Compositæ.) Guatemala.

A greenhouse plant; growing two feet high; with orange-colored flowers; appearing in summer; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1862, pl. 5310.

A very pretty plant, with the habit and general appearance of the zinnia, producing orange-colored flowers, nearly two inches in diameter. As it comes from Guatemala it will undoubtedly prove a fine bedding plant in our climate. The foliage is neat, and the flowers appear on terminal and axillary stems. (*Bot. Mag.*, April.)

642. *RHODODENDRON ARBOREUM*, VAR. *LIMBATUM*. BROAD-ZONED TREE RHODODENDRON. (Ericææ.) Sikkim-Himalaya.

A greenhouse plant; growing six feet high; with rose-colored flowers; appearing in spring; increased by grafting; grown in peaty soil. *Bot. Mag.*, 1862, pl. 5311.

Of all the varieties of the well known and variable Tree rhododendrons of the Himalaya, none is better worth cultivation than this, whether for its early free flowering habit or the exquisite delicacy of the broad rose-colored tints of the corolla, which gradually fade into the almost pure white throat, marked at the base with a deep blood-red blotch. As a conservatory plant it is a beautiful variety. The foliage is narrow and deep green. (*Bot. Mag.*, May.)

643. *LIMATODES ROSEA Lindl.* ROSE-COLORED LIMATODES.
(Orchideæ.) Moulmein.

An orchideous plant; with rose-colored flowers. *Bot. Mag.*, 1862, pl. 5312.

One of the most lovely of orchids, the plant producing a dense spike of the softest rose-colored flowers, marked with crimson at the base of the lip. It is an abundant bloomer. (*Bot. Mag.*, May.)

644. *CLERODENDRON THOMPSONÆ Balf.* MRS. THOMPSON'S
CLERODENDRON. (Verbenacæ.) Africa.

A hothouse climber; with white and crimson flowers; appearing in winter; increased by cuttings; grown in loam, leaf mould and sand. *Bot. Mag.*, 1862, pl. 5313.

A really showy and splendid hothouse climber, with slender stems and neat opposite leaves, producing large terminal clusters of flowers, the calyx of which is white, and the corolla projecting beyond it, of the deepest crimson, presenting a very striking contrast. It grows rapidly, covering ten or twelve feet of roof of the hothouse, and flowers abundantly. It is a decided acquisition. (*Bot. Mag.*, May.)

645. *HÆMANTHUS CINNABARINUS Des.* CINNABAR-COLORED
HÆMANTHUS. (Amaryllidacæ.) Western Tropical America.

A hothouse bulb; growing a foot high; with cinnamon-colored flowers; appearing in summer; increased by offsets; grown in rich, light soil. *Bot. Mag.*, 1862, pl. 5314.

A very pretty species, with showy cinnamon-colored flowers. It is similar in habit to *H. multiflora*. (*Bot. Mag.*, May.)

646. *LILIUM AURATUM Lindl.* GOLDEN-BANDED LILY. (Liliacæ.) Japan.

A hardy (?) bulb; growing two feet high; with white and yellow spotted flowers; appearing in July; increased by offsets; grown in light rich soil. *Gard. Chronicle*, 1862, p. 644.

The description of this beautiful lily, by Dr. Lindley, alluded to in our last number, is as follows:—

“If ever a flower merited the name of glorious it is this, which stands far above all other lilies, whether we regard its size, its sweetness, or its exquisite arrangement of color. Imagine upon the end of a purple stem no thicker than a ramrod, and not above two feet high, a saucer-shaped flower at least ten inches in diameter, composed of six spreading somewhat crisp parts rolled back at their points, and having an

ivory white skin thinly strewn with purple points or studs and oval or roundish prominent purple stains. To this add in the middle of each of the six parts a broad stripe of light satiny yellow losing itself gradually in the ivory skin. Place the flower in a situation where side light is cut off, and no direct light can reach it except from above, when the stripes acquire the appearance of gentle streamlets of living Australian gold, and the reader who has not seen it may form some feeble notion of what it is. Fortunately ten thousand eyes beheld it at South Kensington on the 2d inst., and they can fill up the details of the picture. From this delicious flower there arises the perfume of orange blossoms sufficient to fill a large room, but so delicate as to respect the weakest nerves.

"It is botanically allied to *Lilium lancifolium* on the one hand, and to the orange red *L. Thunbergianum* on the other, but it is wholly different from either. Its happy discoverer was Mr. J. G. Veitch, to whom we are obliged for the following short note.

"The lily, of which the foregoing is a description, was found growing wild on hill sides in the midland provinces of Japan. The flowering season is July and August, during which months it may be commonly seen in situations exposed to the sun. It attains a height of from 1½ to 2 feet, and is remarkable for the great size of its flowers as well as for their fragrance. The roots of this and other lilies are much sought after by the Japanese for purposes of food. They are boiled and eaten in much the same way as we do potatoes, and have an agreeable flavor resembling that of a chestnut. There can be little or no doubt that this lily will prove perfectly hardy in this country. I have myself known from 14° to 16° of frost to occur in localities in which it is found.'"

647. *HELICONA METALLICA* *Planch.* METALLIC-LEAVED HELICONA. (*Musaceæ.*) Santa Martha.

A hothouse plant; growing six feet high; with green and scarlet flowers; increased by division of the root; grown in rich soil. *Bot. Mag.*, 1862, pl. 5115.

The most graceful of all the *Heliconas*, growing six to eight feet high, with very large leaves, two to three feet long, of a dark velvety green above and a coppery metallic purple color beneath. The flowers appear in terminal spikes and are of a brilliant scarlet tipped with green. (*Bot. Mag.*, May.)

THE FANCY PELARGONIUM.

FROM THE FLORIST.

FANCY pelargoniums are among the most beautiful of this truly beautiful class of plants. Not so showy, individually, as the old large-flowered kinds, they make up for this deficiency in the profusion of their blossoms, which literally cover the plants, and when well grown form perfect cones of flowers, their small and neat foliage being completely hidden. Their introduction into every collection cannot be too strongly urged, succeeding as they do the azalea, quite as varied in their colors, more enduring in their beauty, and scarcely less attractive than the former flower. From March to July they render the conservatory gay with their masses of bloom.

The following article on their growth is timely, and so complete that we present it to our readers as one of the best aids to their successful culture that it is possible to have, besides that of one's own practical experience—not easily acquired :

This plant, although one of comparatively easy culture, is, perhaps, more generally mismanaged than any other. Instead of short, sturdy specimens, how frequently are they weak, drawn, and sickly, when with an ordinary amount of care they might have been all that could be desired. As a decorative plant its merit is very great, producing, as it does, large masses of flower of the gayest and most varied colors ; in fact, by slightly varying the ordinary treatment, it may be had in bloom nearly the whole of the year.

The mode of treatment which I have found most successful is as follows, commencing with the propagation of the plant : To insure success, the cuttings should be moderately firm and well ripened shoots ; the method of making them is too well known to need description here. The soil in which they thrive best is thoroughly decomposed loam and dung ; this, with a liberal admixture of sharp silver sand, with the addition of a little leaf mould for the cuttings, is all that is necessary to grow them in perfection. Having a supply of the foregoing, next procure some clean sized 48-pots, well drain them with broken potsherds, make the soil fine, fill them, and

press them moderately firm ; then insert the cuttings, as many as the pot will hold without crowding ; make them quite tight, and the operation is complete. Now set in a light airy place, protected from heavy rains. Do not shade, as they will bear any amount of light ; give occasional supplies of water, and in three weeks or a month they will have struck root. When rooted sufficiently, pot them off separately into small 60-sized pots, taking care to preserve as much of the root as possible ; after potting, place them where they can be kept moderately close and warm. As soon as established, give abundance of air ; and should green fly make its appearance fumigate immediately. This is of the greatest importance. Their next shift may be into 48-sized pots, in which after growing a few joints they may be stopped, which will cause them to break and make dwarf bushy plants. If they have been well attended to they will be ready for their final shift by the middle of November into 32-sized pots, which will be large enough for the first season. Well drain the pots and use the compost rather coarser than before. After this keep them rather close for a few days until they are established, when, on all favorable opportunities, they should have abundance of air. The night temperature need not exceed 42°; it is a common mistake to keep Fancies too warm. Carefully remove all decayed foliage, and keep the stage, glass, and all about them perfectly clean. In watering, great care must be taken at this season ; it is better to keep them rather on the side of dryness than otherwise. If possible choose a fine bright morning for this operation. Make a little fire, and open the sashes at the same time to dispel the damp, so that the house may become perfectly dry before closing, which should be done early to dispense with fire heat as much as possible. As soon as shoots are sufficiently long they should be tied out ; fasten a piece of string beneath the rim of the pot, and draw the shoots down gradually as they elongate. When the days lengthen they will require rather more water, and occasionally a little weak liquid manure may be given them. Sheep or deer dung is the best. As the plants progress they will require all the space that can be given them. Pay every attention to them now, as it is of the utmost im-

portance that they should become as strong as possible the first season. In bright weather, when the trusses of bloom make their appearance, a slight shade will be necessary; increase it as the season advances, and occasionally the syringe may be drawn over them on fine days before closing the house. Before the flowers expand, fumigate two or three nights in succession; this will destroy all green fly, and keep the plants clean for the rest of the season. The cultivator will now have little to do but to admire their beauties as they come into bloom.

If you intend exhibiting, the treatment the second season must be slightly varied. As the plants go out of flower they should be watered sparingly and placed where they can have abundance of air and sun, so that they may become ripe and hard before cutting down, which is generally performed about the second or third week in July. Leave the shoots from four to five inches in length and cut them, so that when completed the plants form half a globe. They should now be watered and occasionally sprinkled, to induce them to break freely. When the shoots are about half an inch in length they should be shaken out, the roots shortened, and repotted into a size smaller pot. After potting they may be placed in a pit; keep them close, and shade gradually, reducing this as as they become established. They should be housed by the first week in September, and encouraged to grow as much as possible. Those for the May shows should receive their final shift into 8-inch pots not later than the first week in October; those for June and July, in November. Use the same compost as before recommended, break it fine, but do not sift, and use abundance of drainage. They will require great care to prevent their becoming drawn, and train the shoots so as to form handsome round bushes. In January, those intended for early flowering should be selected, and receive a little fire heat, with a temperature of 45° at night, and 50° by day. Increase the temperature as the season advances. Give occasional supplies of weak liquid manure, and attend strictly to fumigation. Those for June should not be excited at present, and those for late flowering should be stopped about the middle of the month. As the plants advance, they

require increased attention; and when coming into flower carefully exclude all bees, and invariably water them in the morning, so that they may become dry before night. If the house is closed when damp the flowers decay and soon fall off. They should now be from two to three feet through, and loaded with flowers of fine quality, and fit objects to grace any of the metropolitan exhibitions. The following are a few of the best varieties in cultivation: Acme, Arabella Goddard, Beauty, Bridesmaid, Captivator, Clara Novello, Cloth of Silver, Celestial, Emperor of Morocco, Formosum, Lady Craven, Madame Sainton Dolby, Madame Rougière, Modestum, Negro, Omega, Princess Royal, Queen of the Valley, Rosabella, Sarah Turner, and Undine.



OUR HARDY HERBACEOUS PLANTS.

BY THE EDITOR.

OUR native plants, however so beautiful and highly prized abroad, are slow in finding a prominent place in our own collections. We might name several which are greatly valued by European cultivators which enliven our pastures, decorate the borders of every rivulet, and even brighten the waysides with their varied hued blossoms, that are unknown to all but the enthusiastic amateur cultivator. In the course of our articles we intend to notice some of them, particularly such as possess great attractions, or are deserving of introduction into every garden. The plant we are now about to notice is one of these. It is common in the vicinity of Boston, growing in dry soil and throwing up its branching stems which are covered with its large clusters of yellow blossoms, so gay as to be known by the name of "Butterfly Weed." This is the *asclepias*, known botanically as

ASCLEPIAS TUBEROSA.

Dr. Bigelow, in his *Plants of Boston*, gives a full description of this species. The root is large, fleshy, and branching, throwing up numerous erect or procumbent stems, which are

round and hairy. These stems usually divide at the top into two to four branches, which are crowded with umbels on the upper side. The flowers are numerous, erect, and of a beautifully bright orange color. Such is the description of the *Asclepias tuberosa* (FIG. 16) as found wild in our pastures, growing in Cambridge, Newton, Woburn, and other places, and extending south as far as Georgia.

This species grows naturally in dry soils, and its somewhat fusiform fleshy roots are apt to perish when transplanted to a



16. ASCLEPIAS TUBEROSA.

wet cold soil. In cultivation, therefore, it is best to select a position not too damp. Other than this, it requires no particular attention, growing vigorously and producing an abundance of its erect stems, which attain the height of 2½ feet, branching horizontally at the top, and loaded with numerous umbels of gay colored blossoms.

It is readily increased by seeds which may be planted now, or in spring, or its roots may be taken up in April, divided, and reset.

Other species of *Asclepias* are very pretty, but as they are of rather coarse growth and dingy in their colors, they are

only desirable in large collections, where their tall stems and very large foliage have an ornamental effect. The *A. tuberosa* is by far the handsomest of the genus, and a very elegant and desirable plant in every collection.

General Notices.

ANNUALS.—We may add a few words to the memoranda concerning annuals, this being the season for making selections preparatory to sowing. And first, let us remark, in respect to the position which these plants occupy as garden flowers, that there is at the present day, when the verberna and pelargonium, and a very few other similar subjects, monopolize as it were almost all the parterre, too great a disposition to reject altogether, not only annuals, but also the good old-fashioned race of border perennials. Granted, that in geometrical gardens, which depend as much for their beauty on even patches of well-assorted colors upon the gracefulness of the lines by which these colors are bounded, such plants as those just alluded to are essential, yet we presume to think that the interest and beauty of a garden, using the term in a wider and general sense, may be very much increased by making room somewhere or other for a good assortment both of annuals and of herbaceous perennials. They are many of them most beautiful in themselves. They afford an immense variety, and herein lies one of their greatest attractions, for a garden having these, is not and cannot be a stereotyped design, as they are ever changing with the progressing seasons. And then to this charm of variety, they add the additional good quality of carrying on the flowering season from the earliest moments of spring to the latest hours of autumn. The flowers of the parterre are no doubt beautiful too, but in a different way, and all we urge is that they should not be suffered to banish altogether the more varied characters afforded by the classes we have referred to.

But besides all this, annuals are everybody's flowers. It is not every one who has or can have a geometrical parterre with its half dozen gaudy but often flaunting colors disposed in intricate tracery; but every one who has a garden may have a border of choice annuals and perennials, which he may contrive to keep gay and cheerful all the year round. At present, we must limit our remarks to the annuals.

Let our readers take with us a hurried glance at some of the choicer materials which this class of plants affords for garden decoration. There is so much variety, and tastes vary so much as to what is thought most pleasing, that we may not attempt to place them in order of precedence; we shall therefore merely mention a few of the more prominent, or we may look in another direction. Probably the first place among them belongs to *Linum grandiflorum*; certainly it is very rich and effective when sown out

as a hardy annual on good ground, which, by-the-by, most annuals delight in, although they don't need the fussing necessary for most florists' flowers. Few cultivated flowers are more gay and cheerful than our old friend *Nemophila insignis*, the best variety of which is still pre-eminent amongst *Nemophilas*, and holds a very high rank amongst annuals. Then amongst *Silenes* we have several handsome kinds: there are *S. Atocion*, very dwarf and very pretty; *S. pseudo-Atocion* or *integripetala*, large-flowered, and very bright looking; the old *S. pendula* of trailing habit, and *S. Armeria*, quite erect—all these of ornamental character. *Malope grandiflora* is a noble flower, of large growth. *Clarkia* furnishes the deep colored *C. pulchella pulcherrima*, and the doubled-flowered *C. p. flore-pleno*, both very showy and telling plants. Larkspurs yield almost all colors, both in the rocket and branching form, and some double striped-flowered varieties of the last are particularly handsome. Some of the *Viscarias*, especially *V. oculata splendens*, are exceedingly brilliant. *Cosmidium filifolium Burridgianum*, (generally miscalled *Calliopsis* in the seedshops,) and most of the forms of *Calliopsis bicolor*, (except the quilled one, which is ugly,) are hardly surpassed during a considerable period of the late summer months by any flower that we cultivate. There are the pure white and the rich purple forms of *Iberis umbellata*, which are excellent for massing; there are *Erysimum Peroffskianum* and *Eschscholtzia crocea*, the former erect, the latter trailing, invaluable for their deep rich orange color; there are the graceful *Gilias*—*tricolor*, *achilleifolia*, and *capitata*, and their near relatives the *Leptosiphons*—*androsaceus*, *densiflorus*, and *aureus*; there is *Collinsia bicolor*, and its varieties *multicolor* and *candidissima*; there are the dwarf crimson and scarlet and yellow *Nasturtiums*, plants of glowing brilliancy; there are *Acroclinium roseum* and *Rhodanthe Manglesii*, with their lovely pink everlasting flower-heads, and soon there will be the still finer *Rhodanthe maculata*; there are of the Lupines, *L. Dunnettii superbus* and *L. hybridus insignis*, both charmingly beautiful; and there are besides multitudes of others which space forbids our mentioning. We have as yet said nothing of the fine dwarf *Chrysanthemum*-flowered asters, of the Crown asters, of the Giant Emperor asters; of the large-flowered German stocks of various colors, (two thirds of which, by-the-by, would be better got rid of); or of *Zinnia elegans*, both in its old "single" and the new "double" form. We claim, too, amongst the annuals, since they are cultivated as such though we must own they don't strictly belong to the group, the magnificent *Dianthus Heddewigii*, the grand *Helichrysum bracteatum incurvum* (*Compositum maximum* of the shops) with its many glowing colors; and though last—for we must stop—not least as regards its beauty and utility, the deep azure *Lobelia Erinus speciosa*. Are not these enough to bring a flush to the cheeks of those who speak slightly of annual flowers, and yet revel over a scarlet pelargonium or a dahlia?

Not that all annuals, any more than all pelargoniums or all dahlias, are worth being held in esteem. There are weeds among each; such, for example, in our annual class, are most of the *Eutocas*, many *Silenes*, many Lupines, most of the Mallows, some *Linarias*, some *Clarkias*, all the *Nigel-*

las, which however are curious; Hawkweeds, *Nolana*s, and many more besides.—(*Gard. Chron.*)

[As this is just the season to sow many of the above annuals in our climate, which may be wintered in a frame, we commend the advice to lovers of flowers.—Ed.]

GOLD AND SILVER FERNS.—To the list of gold and silver ferns cultivated in our gardens, we may now add the Golden and Silver Maidenhair, which we observe are advertised by Messrs. Veitch & Son. The former is known to botanists by the name of *Adiantum sulphureum*, given to it by Kaulfuss, and is a very elegant plant, with small-pinnuled dwarfish fronds, clothed on the under surface with a somewhat spare coating of yellow farina, similar to that which occurs on other golden ferns. The Silver Maidenhair is called *Adiantum scabrum*, and is a somewhat larger plant than its golden ally, and frosted over on both surfaces with white powdery matter. Both plants are natives of Chili, and should therefore rank amongst our hardiest greenhouse plants. They will be very welcome additions to collections of choice ferns.—(*Gard. Chron.*)

LA CONSTANTE AND MARGUERITE STRAWBERRIES.—I see that I left out of my account of strawberries, last week, the name of Marguerite. La Constante is all that is said of it. It does not, however, make plants fast enough to please me, and is shy and slow to run. It is a very good strawberry and uniform in shape. Another writer says, let me add a word about La Constante and Marguerite; the latter is quite a novelty, and when the soil and climate suit, will be a splendid sort, both as to immense size, color, form and flavor.—(*Gard. Chron.*)

CHAMEROPS FORTUNI.—At a late visit to Kew Gardens, I had the opportunity of seeing three large specimens of this palm, apparently quite hardy, and in full blossom, the spadix with yellow flowers being many inches in length.—(*Gard. Chron.*)

HABROTHAMNUS ELEGANS.—This is a plant for everybody—nearly hardy, and as easily kept as a *cytissus* or *veronica*. When in bloom the carmine flowers are truly magnificent. It is one of the best plants for a pillar or conservatory wall, but needs shade in June, July, and August. Soil, turfy peat, and yellow loam. Prune after flowering.—(*Flor. Cab.*)

SUMMER ROSES.—In speaking of the late Rose Show, at the British Horticultural Society's Gardens, you say, "Both among old and new varieties the exhibition of the 20th ult. offered unmistakable evidence that the race of the hybrid perpetual is the dominant one, if it be not indeed destined to become almost the exclusive occupant of our rosarium." As a patron of the rosarium, as a patron of that truly fairy scene, a rosarium in full bloom—not a few pets in pots, but a well-arranged garden of roses—let me say a few words for the Gallicas, the Hybrid Chinas, and Hybrid Bour-

bons, for those sorts that usually pass under the name of "summer roses." These pets in pots may be all very well for the rose shows at Kensington, or the Regent's Park; but for the rosarium, to denude it of the summer roses would be to rob it of three fourths of its beauty and splendor. It is now six weeks since the blooming began, and while many a Hybrid Perpetual has shed its half dozen or dozen blooms, and has only a few fading leaves left, the summer roses are many of them still gay, after showing double as many blooms at the same time, during four or five weeks. Where is the Hybrid Perpetual, such as Leopold de Beaufremont, which, on a standard of four or five feet, will carry a head nearly as big as a carriage umbrella, with its 50 or more blooms out at the same time, and keep that up for a month? It is to those only who reside in the country during what is called the height of the London season, that these real glories of the flower garden are capable of being thoroughly known and appreciated. As individual flowers it would be difficult to find the peers or peeresses of such roses as *Senateur Vaisse*, *Comtesse de Chabillant*, *Mrs. Rivers*, *Madame Vidot*, *Wm. Griffith*, *Prince Leon*, *Victor Verdier*, *Géant des Battailles*, *Gen. Jacqueminot*, and others that might be named. And with these, with the constitution of *Baronne Prévost*, we might, perhaps, keep up the splendor of the rosarium, without the help of the summer roses—size, shape, and color, from the delicate blush to the fiery crimson. But, while in the summer roses we have every shade, from *Madlle. Loutman* and *Blanche fleur*, to *Ohl* and *Boule de Nanteuil*, let us hope the summer roses will still find their place in what is deserving of being called a rosarium. In form alone can the summer roses be said to be inferior; while in variety of color, in profuseness of bloom, in richness of perfume, and above all in vigor of constitution, they far surpass the Hybrid Perpetuals, as a class. In the famous winter of 1860-61, I scarcely lost a summer rose, while the Hybrid Perpetuals disappeared by hundreds. Allow me to say thus much in vindication of the *summer rose*.—(*Gard. Chron.*)

BAMBUSA METAKE.—This hardy bamboo, we are glad to see, is duly appreciated by English amateurs. Mr. Bateman, of Biddulph Grange, has introduced it into his magnificent grounds, and it is thus alluded to in a notice of the place:—"This plant is quite invaluable to garden scenery. It grows and spreads rapidly either in dry land, or near the edge of water. Here it is twelve feet high, and will probably grow much taller."—(*Gard. Chron.*)

LILIUM AURATUM.—From your description of this lily it would appear that a native specimen of that plant is not among the lot I gave you when I came home. The plant was difficult to dig, and out of eight or ten specimens put in I was only able to save the fragments of two. One of them I now send you. Instead of growing only two feet in height it is usually four, and produces, often, three, four, and five of its large blossoms on the top of the stem. It flowers during the hottest time of the year, from the end of June to the beginning of August. I rather suspect it to be the

great-great-grandmother of *L. speciosum*. *Lilium tigrinum* is the species usually eaten by the natives, both in Japan and China.—(R. FORTUNE.—*Gard. Chron.*)

Gossip of the Month.

EXHIBITION OF STRAWBERRIES, at the American Agriculturist Office, New York, on June 20 and 21.

There were 24 contributors, only about half of whom had their fruit on the stands in time for the awarding of premiums, the early hour of 10 o'clock being fixed upon therefor. Among these were Messrs. Marshall, Heins, Goldsmith, Fuller, Burgess, Strong, Colgate, Shaw, Drummond, Saxton, and three or four others. Of these, Messrs. Marshall had the largest number, and Mr. Heins and Mr. Burgess had the most splendid specimens. In the afternoon all the other tables were filled by other contributors, among which was the great collection of Prince & Co., consisting of 72 select varieties. In Messrs. Marshall's collection were *Triomphe de Gand*, *Rivers's Eliza*, *Constantia*, *Duc de Brabant*, *McAvoy's Red*, a small red *Elton*, *Cole's Prolific*, *Brighton Pine*, *Scott's Seedling*, *Bicton Pine*, *Madame Louesse*, *Black Prince*, *Voorhis Seedling*, *General Havelock*, *Delice d'Automne*, *Jenny's Seedling*, *Genessee*, *Early Scarlet*, *Willey*, *Trollope's Victoria* or *Boyden's Mammoth*, *Chorlton's Prolific*, *Wilson*, *Austin*, *West Chester*, *Golden Seeded*, *British Queen* (not *Myatt's*), *Fillbasket*, *Duchesse*, supposed to be *Wilson*, *Ohio Mammoth*, *Bartlett*, same as *Boston Pine*, *Walker*, *Prince's Magnate* and *Climax*, and *Fragrant Scarlet*, *Monroe Scarlet*, *Jenny Lind*, *Prince's Diadem*, *Downer's Prolific*, *Duchesse Brabant*. Mr. W. F. Heins exhibited the largest *Triomphe de Gand*, *Lennig's White*, *Heins' Cherry Colored*, *Chorlton's Prolific*, *Athlete*, small, *Le Baron*, very fine, and many others of the largest size. W. A. Burgess, of Long Island, exhibited many splendid varieties, including five new seedlings. Professor Huntsman, of Flushing, exhibited several splendid seedlings, yet unnamed. Mr. Fuller exhibited *Trollope's Victoria*, *Triomphe de Gand*, *Schiller*, *Rivers' Eliza* and two large seedlings, but acid. C. M. Saxton exhibited *Meade's Seedling*. Several persons exhibited *Knox's British Queen*, which proved to be *Rivers' Eliza*. Mr. Drummond had *Jenny Lind* and a very large *White*, supposed *Deptford*. Mr. Pell, of Orphan Asylum, and Rev. L. M. Rease, of Mount Vernon, had several splendid and well-grown varieties, but both too late for premiums. Geo. F. Myer and J. C. Thomson sent fine varieties. Prince & Co. filled all the space that was allowed them, among which were the following:—

AMERICAN VARIETIES.—*American May Queen*, *Ophelia*, *Primate*, *Ariadne*, *Scarlet Magnate*, *Sirius*, *Chili*, two varieties, *Stewart*, *Suprema*, *Diadem*, *Victorine*, *Welcome*, *Austin*, *Scarlet Prize*, *Scarlet Melting*, *Le Baron*, *Prince's Late Globose*, *Fortunatus*, *Jenny Lind*, *Globose Scarlet*,

Hooker, Lennig's White, Hovey, most splendid specimens, Fillmore, True Hudson's Bay, Imperial Scarlet, Ladies' Pine, Perfumed Cone, Malvina, Rosalind, McAvoy's Superior.

EUROPEAN VARIETIES—PINES.—English Ladies' Finger, Triomphe de Gand, Comtesse de Beaumont, La Sultanne, Emma, La Constance, very superior, Lucas, Marguerite, Orb, Oscar, Prince Imperial, Wizard of North, Ingram's Rifleman, Empress Eugenie, Frogmore late Pine, Delices du Palais, Robert Trail, Ingram's Prince Arthur, &c.

Also, 8 varieties of Hautbois and Alpine varieties, and 14 very large and high-flavored seedlings, 8 of which were of the Pine family.

Parsons & Co. exhibited Triomphe de Gand and Cutter's Seedling.—P.

[We are glad to see our neighbors have variety enough—though the very best may not be among them—but what the object of cultivating so many worthless and rejected sorts, tried and thrown away, around Boston, 18 or 20 years ago, we are at a loss to know. We hope, however, the effect of such a show will be to do away with the "miscellaneous trash," as Mr. Barry justly calls it, which fills the market in New York, and finds its way to Boston, in considerable quantities.—Ed.]

Massachusetts Horticultural Society.

Saturday, June 21.—The Summer Exhibition of Roses took place to-day. The number of exhibitors was much smaller than usual, but the roses were never presented in finer condition.

Hybrid Perpetuals were more numerous than heretofore, and in finer order. With the new and really beautiful acquisitions which have been made to this class, they are becoming greater favorites. The flat, hard-eyed and indifferent colored old sorts, are giving way to the globular, cupped and brilliant colored new kinds, of which Gen. Jacqueminot and Lælia, may be mentioned as examples.

Roses were exhibited by Messrs. Hovey & Co., Spooner & Parkman, W. C. Strong, J. C. Chaffin, Jas. Nugent, J. McTier, and others.

Twenty-four Hybrid Perpetuals, from Hovey & Co., which were awarded the first prize, contained Glorie de Lyon, Gen. Jacqueminot, Baron Prevost, Jules Margottin, Lord Raglan, Lælia, Auguste Mie, La Reine, Lion des Combats, Duchess de Cambaceres, Mad. Knorr, Queen Victoria, Lady Francis Waldegrove, Caroline de Sansal, Duchess of Sutherland, Prince Kostchouby, Geant de Batailles, Pie IX., Anna des Diesbach, Souvenir Reine d'Angleterre, Oriflame, St. Louis, Sydonie, and Souvenir de Leveson Gower.

J. C. Chaffin was awarded the second prize, with a very fine collection, many of them the same varieties.

The best twenty summer roses came from Messrs. Hovey & Co., and contained Shakespeare, Mad. Hardy, Mad. Legras, Mad. Plantier, Boule de

Nanteuil, Coupe d'Hebe, Walter Scott, George IV., Tricolor de Flandres, Cæsar Beccari, (striped,) Paul Ricaut, L'Obscurité, Paul Perras, Richelieu, La Ville de Bruxelles, Louise Leker, Annable, Thurette, Margaret and Mary, and Chenedole.

FRUIT.—The show of strawberries was very fine. Messrs. Hovey & Co. sent La Constante, Empress Eugenie, Ad. Dundas, La Sultanne, Ambrosia, Marguerite, Boston Pine, Hovey's Seedling, and Austin. The Empress Eugenie was very large, weighing more than La Constante, but coxcomb shape, and not so handsome. The Constante were superb specimens of the best foreign strawberries yet introduced into this country. Other exhibitors had Triomphe de Gand, Hovey's Seedling, and Victoria.

July 1.—The stated quarterly meeting was held to-day,—the President in the chair.

The Executive Committee reported that the Recording Secretary be paid fifty dollars a year, including the three previous years. Adjourned one month, to August.

August 1.—The Committee on Fruit awarded the following premiums:—

AWARD OF PREMIUMS FOR FRUIT.

CHERRIES.—For the best 2 quarts, to P. J. Stone, for Black Tartarian, \$4.

For the next best, to William Bacon, for Black Tartarian, \$3.

For the next best, to H. Davis, for Black Tartarian, \$2.

GRAPES.—For the best, before July 1, to R. W. Turner, \$8.

For the next best, to Mrs. F. B. Durfee, \$6.

For the next best, to J. Breck, \$4.

PEACHES.—For the best, to C. S. Holbrook, for Late Crawford, \$6.

For the next best, to O. Bennett, for Early Crawford, \$5.

For the next best, to C. J. Power, for Barnard's Early, \$4.

STRAWBERRIES.—For the best display, to Hovey & Co., \$10.

For the best collection, to Hovey & Co., \$6.

For the best 2 quarts, to Hovey & Co., for La Constante, \$5.

For the next best, to J. W. Foster, for Triomphe de Gand, \$4.

For the next best, to W. C. Strong, for Triomphe de Gand, \$3.

For the next best, to J. W. Foster, for Jenny Lind, \$2.

Horticultural Operations

FOR SEPTEMBER.

FRUIT DEPARTMENT.

CONTINUED favorable weather, with just the right amount of heat and sun, and rain, has forwarded vegetation, and given it a vigor rarely, if ever, surpassed in our climate. The season has been truly propitious.

GRAPE VINES, in the earlier houses, should be pruned preparatory to renewed forcing in October or November. Give the usual attention to

washing and cleaning the vines. Later houses will now have their crop fully matured, or partially gathered, and will require but little care. Cold houses will begin to ripen their crop, and should be looked after attentively, though danger of mildew is mostly over. Care should be taken, however, to ripen the wood thoroughly, on which, in fact, a good crop depends. Give air freely in good weather; stop the laterals, as they grow too far, and discontinue all superfluous watering. Young, or new planted houses should be shut up early, to maintain a moderate growth.

STRAWBERRY BEDS will continue to need attention, as it is this month that the plants make great progress. Keep down all weeds, and lay in the runners, or cut them, according to the mode of growth.

SUMMER PRUNING should be mostly discontinued, after the commencement of September.

GATHERING FRUIT will be a prominent occupation this month. Pick when the fruit is dry, and pack away in boxes, or lay upon shelves, in a close room.

FRUIT TREES, in pots, should now be more sparingly watered, so as to secure well-ripened wood. In long-continued rains it is well to turn the pots upon their sides.

CURRENT BUSHES may be transplanted the last of the month.

ORCHARD HOUSES should have an abundance of air, night and day, unless in heavy rains, or exceedingly cool nights. Water with liquid manure, trees bearing heavy crops.

FLOWER DEPARTMENT.

September should find the industrious gardener laying his plans for the winter. With the houses all in order, and soils prepared, the work of potting and housing is much more quickly done. The last of the month is generally too cool for many plants, and such as are liable to injury should be put in before cold nights. Propagation should be continued, and everything done to prevent hurry at the close of the month.

AZALEAS should now have completed their growth and set their buds, and as soon as this is ascertained, the sooner they are removed to the open air the better, selecting a sheltered place, where they can have the full benefit of the sun and air, to ripen their wood. Tie the plants into shape, if not already done. Water moderately, and remove to the house before frosty nights.

CAMELLIAS may have a more sunny situation, to mature their growth, syringing them every day. Repotting may be continued when the plants require it. Cuttings may be put in now. Remove the plants to the house before frosty nights.

CINERARIAS, if well established, should be repotted, and kept in a frame. Pot off young seedlings, using light rich soil. Keep off the green fly, by fumigation.

HEATHS, and similar plants, growing in the open ground, should be potted and removed to a frame.

PELARGONIUMS should have attention. Remove the plants to the house in good season; and place them near the light, where they will have plenty of air, and but little water. Young stock will require the same attention.

CHRYSANTHEMUMS must now be freely supplied with liquid manure, in order to ensure a vigorous growth, and plenty of flowers. Remove to frames, or the house, before heavy frosts.

ROSES should be potted, giving them the protection of a frame for a few days.

ORANGE TREES should be removed to the house in good season.

FUCHSIAS should be watered occasionally, with liquid manure. Repot, if the plants require it.

IXIAS, and other winter flowering bulbs, may be potted this month.

MONTHLY CARNATIONS, planted out in the ground, should be taken up and potted.

BOUVARDIAS, for winter blooming, may be repotted.

HELIOTROPES AND VERBENAS should be repotted.

BEGONIAS, of the flowering kinds, should be repotted.

ACHIMENES, going out of bloom, may be placed away, under the stage on a dry shelf.

TUBEROSES should be removed to the house, before cool nights.

PROPAGATE BEDDING PLANTS of all kinds.

CANNAS, and other tender plants, put out in beds, should be taken up and placed in pots, or boxes, before severe frosts.

WINTER FLOWERING PLANTS should be encouraged to make a good growth, and, before frost, all should be shifted or potted, and have the protection of a frame till well established.

CALADIUMS, **BEGONIAS**, and other stove plants, should be allowed to die off gradually, by withholding water, according to the wants of the plant.

CHINESE HIBISCUS, planted out in the border, should be taken up and potted.

FERNS should now be freely syringed, and encouraged in their growth.

COLLECT AND PREPARE SOILS for use during the winter.

FLOWER GARDEN AND SHRUBBERY.

The fine weather, and abundant rains, have kept the lawn in excellent condition, requiring frequent rolling and cutting. Continue to give it every attention, rolling and cutting as long as there is any growth. Clean, rake, and roll the walks.

CARNATIONS AND PICOTEEES should be removed to a well prepared bed, where they can have the protection of a frame.

TUBEROSES should be removed to the house, before severe frosts.

DAHLIAS will require pruning and tying up, as they proceed in growth; thin out the buds, if fine show flowers are wanted.

HERBACEOUS PLANTS, of many kinds, may be divided and reset this month.

PANSY SEED, for early spring flowering, may be planted now.

AMERICAN POMOLOGICAL SOCIETY.

THIS Society has just closed its Ninth Session, which was held in this city the past month. In these exciting times, it was feared the meeting would not be so large and interesting as those which have preceded it; but fortunately such anticipations were not well founded; on the contrary, the attendance was very large, comprising nearly two hundred members and delegates from the sixteen loyal States. And it is a matter of congratulation with all pomologists that, notwithstanding the perilous times in which we live, the science of fruit culture has not been neglected, nor the interest in the subject suffered any diminution. Eighteen years have only seemed to renew the exertions of the older members, and incited the younger to more active labors in promoting the objects of the Society.

In some respects the meeting was one of more interest than any of the previous sessions. Conformably to a vote at the last meeting, held in Philadelphia, in 1860, the General Fruit Committee laid before the Society a Catalogue of Fruits, prepared by them, under the supervision of Mr. P. Barry, from the Reports of the various State Committees, giving the names of all the fruits recommended by them, alphabetically arranged, in tabular form, showing, at one view, all the different states or localities, thirty-five in number, where each fruit succeeds, or has become the most popular in cultivation.

Though we do not attach so much importance to these local lists as some cultivators do, the preparation of the Catalogue has been a work of great labor, and it will prove a valuable source of reference, in regard to the several varieties enumerated, as well as a material aid in the selection of kinds suited, so far as the experience goes, to the various localities. It at least shows what fruits have been raised most successfully, though others, if as fully tried, might be just as certain of equal results.

We have not time or space now to go into an examination of the Catalogue, and give a summary of its results. This we shall endeavor to do at another opportunity. Thirty-five different localities are enumerated, north of the southern line of Virginia, Tennessee and Missouri, and in whichever of these localities any fruit is the most popular, or has been recommended as such by the State Committees—some of whose reports, however, have been very meagre—such fruit is indicated by a star (*), or if of very great superiority, by two stars. As regards the qualities of the fruits, such as are particularly adapted to marketing are so indicated by the letter M., and in regard to seasons of ripening, summer, autumn, and winter are indicated by the letters, S. summer, A. autumn, and W. winter, or E. S. early summer, &c.

Thus, at one glance, the cultivator can learn the character of all the popular fruits in the United States, and can form some idea of the sorts which he may rely upon when making a larger or smaller plantation of trees, either for the market, or for home use.

Next in interest was the President's Address, which, as usual, was replete with pomological research. He reviewed the progress the previous two years, and enlarged upon various subjects of great interest to the cultivator, and offered suggestions in regard to further experiments. We copy, with pleasure, some of the more important of these suggestions, and commend them to the attention of our readers:—

THINNING OF FRUITS.

One lesson which experience has taught us, is the importance of thinning the fruit, especially of apples and pears. This branch of Pomology has received comparatively but little attention. There is a limit to the capabilities of all created things. If you tax the energies of an animal too severely for a long time, the result will be premature age and decay. Subject any vegetable or mineral substance to too great pressure, and you destroy its power of cohesion. So if you permit a tree to bear beyond its strength, you injure its fruit, retard its growth, and shorten its life. All have observed that superfecundity one year produces barrenness the

next. Hence we hear among our farmers and gardeners of what they term the bearing year. They invariably designate the Baldwin apple as a tree that bears on alternate years. But is not the cause of this alternation found in the fact, that the abundant crop of the bearing year exhausts the energies of the tree, and absorbs the pabulum so as not to leave sufficient aliment for the formation of fruit spurs for the succeeding year? Many varieties have a tendency to overbearing, especially those which produce their fruit in clusters. Nature herself teaches us the remedy for this evil, and a superabundance of blossom is generally followed by a profuse falling of the embryo fruit. When and where this dropping is not sufficient to prevent overbearing, we should resort to the process of relieving the tree of a portion of its fruit.

The organism which carries on healthful development, in order to repeat its cycle of functions from year to year, cannot be overworked without time for recuperation. Whatever of nutrition goes to the support of useless branches, or a redundancy of fruit, abstracts that strength from the tree which would otherwise be appropriated to the perfection of the crop, and the development of the spurs which would bear fruit the next year. One of the best cultivators in the vicinity of Boston has reduced this theory to practice, with the happiest effect, in the cultivation of the pear. His system allows no useless wood, nor more fruit spurs, and no more fruit, than the tree can properly sustain. As a consequence, he produces every year superior fruit, which commands the highest price. Some have doubted whether this practice can be made remunerative, except in its application to the finer fruits. But another cultivator, who raises an annual crop of the best apples, assures us that the secret of his success is the thinning of the fruit, and he has no doubt of the economy of the practice. No good farmer doubts the necessity of thinning his root crops, no *vigneron* the propriety of thinning his grapes. Analogy of cultivation, therefore, justifies the practice, and I entertain no question of its great importance.

Light, air, and moisture, are essential to the production of vegetable products, and especially of fine fruits. Who has not observed that the best specimens of fruits on a tree are

ordinarily those which are most exposed to these elements? Who does not select the full sized ruddy fruit, which has had free communion with light, heat, and air, in preference to the half fed specimen which has shared its own proper nourishment with five or six crowded rivals on the same spur?

An experienced English cultivator says: "The bending of branches of trees by an overcrop of fruit is most injurious, for the pores of the woody stalk are strained on the one side of the bend, and compressed on the other; hence the vessels through which the requisite nourishment flows being partially shut up, the growth of the fruit is retarded in proportion to the straining and compression of the stalk." This is illustrated in the overbearing of some varieties, which, from a redundancy of fruit, without the process of early and thorough thinning, seldom produce good specimens, and in a few years become stunted and unhealthy trees. The overbearing of a tree is as much a tax upon its energies and constitution, as is the exhaustion of a field by excessive crops of the same kind, year after year, without a return of nutritive materials. Inexhaustible fertility is a chimera of the imagination. Sooner or later, the richest soils will require a restoration of what has been abstracted by vegetation. However fertile at first, the constant overcropping of the soil is a reduction of the elements on which health and fruitfulness depend. This great principle of sustenance and reciprocal relation runs through the whole mass of life, of mind, and of matter.

"One cry with never ceasing sound,
Circles Creation's ample round."

Intimately connected with this process of thinning, is the time when the work should be executed. It should not be done before we can distinguish the choicest specimens in a cluster of fruit, nor delayed so long as to waste the energies of the tree. This practice, judiciously followed, will supersede the necessity of staying up the branches, will prevent injury to the tree by their breaking, and will prove decidedly economical.

Associated with the thinning of fruits is the expediency of gathering a part of the crop as soon as it approaches maturity. The remaining specimens will thereby be much increased in

size and excellence. The fruit of a tree does not all come to maturity at the same time, hence this successional gathering will turn the crop to the highest practical account, and will keep the productive energies of the tree in a healthful and profitable condition.

NEW NATIVE VARIETIES.

I have before spoken of the production of new varieties of fruits adapted to our country. But as it is "line upon line, and precept upon precept," that makes a durable impression, let me remind you again that the future success and progress of American Pomology must rest mainly upon the introduction of new kinds raised from seed upon our own soil. Let me, then, encourage you in this laudable enterprise.

Is there any reason why we cannot produce Winter varieties of pears of the finest quality, as beautiful and smooth as the favorite Bartlett, or Louise Bonne de Jersey? The Beurré Langelier, and Glout Morceau, in regard to beauty, are of this class. Why cannot we have, instead of the rough exterior of some of our late sorts, those of fair skins and ruddy colors? And then in regard to flavor, why not be able to produce those of a rich character, like the Seckel, Belle Lucrative, and Passe Colmar? From the seed of the latter many varieties were raised by the late Mons. Esperin, of Malines. Some of these are even superior in saccharine matter and richness to the parent, but unfortunately not well adapted to our climate. Why should not our popular Bartlett be the mother of a race equal in quality and hardier in character? Of the seedlings raised in this vicinity, those on exhibition from Mr. Richardson, of Dorchester, Mass., are striking illustrations of the value of this variety as a parent from which to originate good native sorts. The experiment of the late Mr. Clapp of Dorchester, in the union of the Bartlett and the Flemish Beauty, as is believed, produced the Clapp's Favorite, a pear of equal size and beauty, entirely hardy, and pronounced by the best judges to be superior to the variety first named. The seedlings raised by Mr. Dana of Roxbury, Mass., are all good. Some of them are superior, and evince a constitution and vigor which adds much to the

value of their excellence. When we reflect upon the little effort which has been made to produce native varieties, it is wonderful what progress has been made.

In the production of new sorts we should aim first, at a strong, hardy, robust, vigorous habit, and thus overcome a difficulty which now exists with many of the best fruits, namely, a weak, straggling growth. Others are constitutionally wayward and unhappy in their growth, like *Beurré Bosc*, so as to render them scarcely obtainable from our nurseries. For instance, instead of trees with the feeble wood of the *Winter Nelis*, we could have the same fruit from a tree like the *Doyenné Boussock*, or *Buffum*, the former of which, in Europe, attains the height of fifty to sixty feet, and here both are scarcely less vigorous or hardy. This is only to be obtained by the choice of parent varieties to breed from, one of which, at least, possesses like vigorous habits.

In regard to bearing properties, we should select those which come early into fruit, and set their fruit readily, and annually, like the *Louise Bonne de Jersey* and *Vicar of Winkfield* pears, and not like many kinds which flower freely, but do not set their fruit until the trees have attained a great age. With the apple we should aim to produce varieties of the constitution and beauty of habit, as well as of fruit, like the *Baldwin*, *King*, and *Gravenstein*, and should avoid, if possible, those of an opposite character. It may be said, that many of our earliest fruits are necessarily of medium, or small size. This can be overcome. There is no general law which limits this feature. The improvement is all within the hand of man to mould them as he will. The field of progress is endless, and it is our duty to occupy it. The same Divine Power that created the infinite species of plants and trees, also furnished them with the ability not only to perpetuate themselves, but like the animal kingdom, under judicious treatment, to produce improved varieties.

The success which has attended the application of judicious labor, leads to the conviction that great improvement is also to be made in our methods of cultivation. Compare, for instance, the magnificent specimens of some varieties now on exhibition with those of ten years ago. What has produced this

great change? Why, manifestly a better knowledge of their several characteristics, and of the best mode of cultivation. What has given the little Delaware grape a world-wide celebrity but proper cultivation? What has rendered Hovey's Seedling strawberry so deservedly popular in the Boston market, but a knowledge of its characteristics and the right method of treatment? In the former case at the Iona Island, and in the latter, at Belmont, it would seem that perfection in culture had been attained.

After the choice of officers, the active business of the meeting commenced. Various fruits were discussed, and when the authentic Report is published we shall, as heretofore, collate and present a summary of the whole proceedings.

HALF HOURS WITH OLD AUTHORS.

BY WILSON FLAGG.

"THE RURAL SOCRATES."

SOME account of this work, though perhaps more appropriate to an agricultural paper, than to the Magazine of Horticulture, cannot fail to be interesting. The celebrated Arthur Young, having perused a work in the French language, entitled "*La Socrate Rustique*," and not having seen it in an English dress, determined on account of its great merits and undoubted utility, to procure a translation. He wished that the public might not be deprived of the loss of such an example as the subject of the work afforded. The work is peculiarly connected with the economical management of a farm; it enlarges on some of them, and presents other ideas of indispensable use. The whole contains the real management of a Swiss farmer. It is the history of his practice, and displays an example not only of economy, industry, sobriety, and every domestic virtue, but also of the most efficient husbandry. It gives account of a poor peasant, coming to a small farm overwhelmed with mortgages, practising so animated an agriculture, as not only to gain enough to discharge

his incumbrances, but to purchase more land, and to cultivate the whole with unremitted diligence and neatness. This work was afterwards republished in Hallowell (District of Maine) in the year 1800, by Peter Edes.

The work is entitled, in English, "The Rural Socrates; or an Account of a celebrated Philosophical Farmer, lately living in Switzerland, and known by the name of Kligogy." The true name of this peasant was Jacob Gonyer. The book was first written in German by Dr. Hirzel, a physician of great eminence, and a statesman. "James Gonyer (says Dr. Hirzel) presented to my admiring eye, the most exalted faculties of the human mind, in a state of noble and interesting simplicity; void of pretension and ostentation, and such in short as they come out of the hands of nature. The circumstantial description which I have collected of his management, comprises in my opinion, everything which, upon the plan of Socrates, is most important to be known for the improvement of husbandry. Happy shall I be, if my efforts can excite a corresponding emulation among our farmers! The just praise bestowed upon the man whom I have selected for a model, and the honors paid to his singular talents, may at least assure them, that, whenever they fulfil the duties of their station with intelligence and assiduity, like him they will obtain the blessings of Providence, with the universal approbation and esteem of mankind."

The character of Kligogy is not that of a man corrupted or improved by frequent intercourse with the inhabitants of some neighboring city; and who has been led to assume manners ill suited to the situation of a peasant; much less is it that of one whom the society of men of letters, or a superficial knowledge of books has made a pretender to learning. Kligogy was indebted to nature and his own habits of study and observation for all he possesses; he owed nothing to artificial culture. Contented with his lot, he refused every office even in the village where he resided.

Kligogy and his brother, at the commencement, occupied a farm together, he having six children and his brother five. At the death of their father the family inheritance was divided among five sons. The eldest chose an estate for his share;

the two next preferred money ; and the two associates remained joint heirs to a tract of land of about ninety-four acres, which was thus divided :—Meadow ground, 15 acres ; arable, 45 ; pasture, 24 ; wood, 10 acres. The value of this farm might be £875 sterling. It had a mortgage upon it for half the amount at the time of their taking possession of it. Beside this it was charged with the payment of the younger brothers' fortunes. One of them died soon after and returned them a part, but by adding a payment to be made to the youngest son, the debt still amounted to £547. This was certainly a heavy incumbrance on so small an estate ; and the neighboring farmers judged with great probability, that the two brothers must soon sink under it. Indeed this must have seemed likely in their own view, burdened as they were with the management of a farm, whose produce must previously raise an annual rent charge for the payment of interest ; and the land so impoverished and neglected that it seemed impossible to bring it into condition, except at an immoderate expense. A family so situated, where there were many to feed and few to work, must cause great consumption, and afford but little assistance in the cultivation of the farm. The necessity of hiring laborers also appeared indispensable, and the wages of such had been greatly advanced by manufactures.

Such united obstacles produced on the mind of Kligogy their proper effect ; they animated him with resolution to redouble his zeal and application to surmount them. He was successful, and our prudent economist contrived without the aid of strangers or contracting fresh debts, considerably to augment his fortune. The system of husbandry thus successfully practised must certainly be valuable to the community ; and though it is not possible in this limited notice to give even a general account of it, I shall present the reader with such detached portions of his management as may be most interesting to the readers of these pages.

Omitting Kligogy's practice in regard to the common operations of agriculture, I will present the reader with his mode of cultivating and preserving forests. He left to nature the care of sowing pines and firs, not professing to have much

knowledge concerning the culture of trees. He bestowed a kind of culture on his woods, mainly for the purpose of increasing manure for his grounds. Hence he collected, with great industry, small branches of pines and firs, with dead leaves and moss. It is with this view also that he carefully rooted out all weeds, ventilated the young shoots, and stripped his trees from time to time of branches almost to the top; a method which, in his opinion, contributed in no small degree to accelerate the growth of the trees and augment the beauty of their trunks. This mode of practice, I would remark, would hardly be considered rational at the present time. And indeed the neighboring farmers rejected his manner of treating trees, as extremely prejudicial; but strange as it may seem, Kligogy's pines and firs were fully equal, and often superior in growth to those of his neighbors'. His experiments are certainly worthy of attention, as a matter of curiosity.

Dr. Hirzel says, it must be allowed that, on the first view, his woods appear thinner, from the openings visible between the trunks where the branches are taken off. But he did not see a single young fir that was withered or decayed, though the branches of all were considerably lopped. Kligogy made experiments some years since how far he might carry such operations with safety. He reduced the branches of so many trees as the compass of a quarter of an acre afforded, leaving only three knots on any one; the trunks were from six inches to a foot in circumference. He did not lose more than four trees; the rest, to speak truly, were a longer time than usual in making their shoots, but they afterwards grew as vigorously as others. Kligogy observed that every year produced a new head to the fir tree, till it arrived at its perfection; and he inferred that the lower circle might be taken off every year without injury to the tree; and that if pruning had even been omitted several years together, the same number of circles might be taken off with confidence.

Dr. Hirzel remarks, that this practice is contradictory to the generally established theory of the vegetation of trees; and the experiments of the most distinguished naturalists have demonstrated that trees receive their principal nourish-

ment from the action of the atmosphere and light upon their leaves and branches. Yet the success of Kligogy's experiments, he thinks, would seem to indicate that the resinous and aromatic trees which have spines instead of leaves, may not be so dependent for their increase, on the preservation of their lateral branches, and that they may be pruned with less hazard than other woods. He thinks, at any rate, that the experiments of so distinguished a practical cultivator as Kligogy, attended as they were with a certain kind of success, merit the attention of all philosophical observers.

Mr. Arthur Young remarks, that he has heard of this method of pruning fir trees being attended with great success; but he cannot believe in it. He says, according to this theory, "if you cut a man's arms off, you increase his height amazingly. In theory, and according to my observation, all this reasoning is false. How comes it that pollard trees (those whose heads are regularly cut off for fagots) do not near equal, even in girth, good timber trees? Even the size they do attain is deformed and odious."

On the other hand, we may quote a passage from the French Encyclopedie, article *Arbre*, in which this pruning process is advocated. "The culture of a tree, by pruning away part of its branches, contributes more than any other method of industry to their luxuriance; so that it may be truly said, the more limbs they retrench in vegetable life, to a certain point, the more they multiply. Those who have never seen a tree entirely stripped of its branches to the very root, will consider it in this mangled state, as incapable of recovery, and fit only to be hewn down. Yet if an oak, an elm, a poplar or any other tree, whose trunk rises in a perpendicular direction, is stripped of its branches from top to bottom, it will throw out from the lowest amputated parts to the top an infinite number of buds everywhere, which bursting into leaves round a trunk thirty or forty feet in height, form a clothing of thick branches that almost conceals the body of the tree. In the same manner a person who first beholds a tree that has lost its head by a hurricane or an axe, close to the neck of the branches, would naturally conclude for six months after, that it was a dead trunk, whose vegeta-

tion could never be renewed. But how great the surprise to behold a tree in these circumstances shooting forth below the wounded part a profusion of young branches that form another head! This shows the almost inexhaustible resources of vegetable nature. For it may be confidently asserted that from the extremity of the branches to the root of the tree, there is no perceptible space that does not enclose a portion of embryo life ready to appear, whenever the situation of the tree requires an extraordinary exertion of the secret springs of vegetation."

It must be considered, however, that Kligogy adopted this sort of management of his firs, not so much to improve their growth, as to supply himself with material for compost to spread on his farm. If, therefore, he did not by this process injure the growth of his firs, if he still obtained as much timber as he would have obtained by leaving them untouched, all the compost he made from the leaves and branches taken from them was so much clear gain. These facts are also remarkable, as a specimen of the husbandry of a poor farmer who had accomplished what was considered almost a miracle by his neighbors, and they show that extraordinary modes of practice, may sometimes be followed by extraordinary success.

We see, as Dr. Hirzel remarks, in the instance before us, an estate where situation and appearance denoted ruin and decay, having few natural advantages, and being loaded with a heavy mortgage. Yet in a few years it was improved to a height almost incredible, yielding very nearly double the crops of hay and grain it formerly produced. Some of Kligogy's neighbors, who were far from being partial in his favor, assured Dr. Hirzel, that when he first engaged in his undertaking, the lands which belonged to him were ranked among the worst; but that now, in proportion to their extent, they always produced the finest crops in that division. They likewise regarded his enterprise as the most rash imprudence, which could not fail, in a very short time, to involve the two brothers in ruin; and they were for a long time expecting their bankruptcy. And, indeed, who would not have pronounced the same sentence on the following question?

Whether a family, consisting of four parents and eleven small children, could be comfortably supplied with the necessaries of life from a wornout estate, scarcely valued at \$4375, which must pay an annual interest for \$2735? The event, however, answered the question in favor of the proprietors, and the success of their enterprise was due to the activity and enterprise of this extraordinary man.

It should be noticed that the surplus profits of the year were always employed by Kligogy in improvements, which he regarded as more advantageous than liquidating the mortgage upon his estate. He thought he made much more interest by employing a certain amount in agriculture, than the four per cent. he was paying; he also considered the reciprocal convenience it is to a rich citizen to have his money on landed security. Notwithstanding the burden of these annual payments, Kligogy bought every year a large quantity of manure from his neighbors, which he mixed with peat ashes, and exposed to heat and fermentation. But the necessity of economizing in these, as well as other expenses, led him to adopt several ingenious modes of enriching his land, one of which has already been discussed. Not being able to obtain marle in sufficient quantities, he discovered a method of improving his land by using a small gravel, which was probably a sort of half-crumbling feldspar. This was of a bluish hue, and bordering upon marle; and the soil on which he spread it was a greasy reddish sand. Kligogy discovered veins of this gravel running along the sides of some barren uncultivated hills, in the neighborhood, commonly on or very near the surface. In loading his carts, he throws aside the larger stones, strewing only the fine part on light lands. This was one of his occupations on winter days.

By the assistance of this extraordinary fertilizer, Kligogy converted the worst land imaginable into excellent grain fields. The effects of this gravel led him to this general maxim—that every species of earth may be instrumental to the improvement of another of opposite qualities. The discovery, therefore, of a stratum of earth hitherto unknown to him, was as great an acquisition in his eyes, as a purse of gold in those of a miser. Kligogy never suffered a prejudice

of any kind to lead him to the rejection of new experiments. He thought, in general, as just stated, that all mixture of earths, where their nature is different, contributes to fertility; nay, even where the distinction lies only in color. He had no doubt of improving a field, if at a moderate expense, he could contrive to carry fresh mould to it of a different quality. Thus a light soil is improved by a heavy one; a sandy soil by a clayey one; a blue clay by a red clay, and a red gravel by a blue gravel. It is in these different modes of procuring manure, and in constant industry in obtaining it, that according to Kligogy the fundamental basis of agriculture consists.

The most interesting part of this book is that which treats of Kligogy's views of education, his moral views of society, and his system of domestic economy: but this must be omitted for want of space, and is not strictly appropriate to the columns of this Magazine.

POMOLOGICAL GOSSIP.

CREVELLING GRAPE.—This grape, which has heretofore been well spoken of, but which has not attracted a great deal of attention, was exhibited at the late meeting of the Pomological Society in this city. The specimens were from Salem, and were quite ripe, showing that it is quite as early as the Concord, unless the location was highly favorable. Its quality is excellent, better than the Isabella, and the bunch of fine size. According to the appearance of the grape it seems likely to become a popular early variety.

BARTLETT STRAWBERRY.—According to the evidence of several cultivators, this new variety proves to be the Boston Pine. Some state that it is so much like it they can hardly distinguish one from the other. Not having cultivated it we cannot speak of our own experience in regard to this variety. The Boston Pine is so very distinct that a single inspection of the plant would decide all doubts regarding it.

FINE PEARS AT THE EXHIBITION OF THE MASSACHUSETTS HORTICULTURAL SOCIETY.—The show of fruit, particularly pears, at the Exhibition of this Society last month, was unusually fine, many of the specimens surpassing those of any previous year. The following are the kinds in some of the principal collections:—

From Hovey & Co., Beurré d'Anjou, B. Hardy, B. Bosc, B. Superfin, Bartlett, Moore's, Sheldon, Swan's Orange, Louise Bonne de Jersey, Urbaniste, Doyenné Boussock, D. du Comice, Pratt, Duchesse, Belle Lucrative, Howell, Flemish Beauty, Kingessing, Marie Louise, Merriam.

From H. Davis, Beurré Diel, B. Easter, B. Bachelier, B. Langelier, B. d'Anjou, Winter Nelis, Doyenné Boussock, Flemish Beauty, Louise Bonne de Jersey, Belle Lucrative, Swan's Orange, De Tongres, Duchesse, Urbaniste, Bartlett, Seckel, Andrews, Dix, Glout Morceau, Marie Louise.

From J. Gordon, Bartlett, Urbaniste, Beurré d'Anjou, B. Bosc, B. Clairgeau, B. Diel, Dix, Bonne d'Ezee, Seckel, Merriam, Flemish Beauty, Winter Nelis, Andrews, Duchesse, Lawrence, Doyenné Boussock, Fulton, Louise Bonne de Jersey, Belle Lucrative, Stevens's Genesee.

BIDWELL'S SEEDLING GRAPE.—At the Crystal Palace Horticultural Show, Sept. 1, the Report says: "Of Bidwell's Seedling, a grape something like Black Hamburgh, three bunches came from Mr. Hill, the united weight of which was 6½ lbs.," showing it to be a large as well as a fine grape.

TREBIANA AND OTHER GRAPES.—At the same show many fine specimens of grapes were exhibited; 3 bunches of Black Hamburgh weighed 9 lbs.; 3 bunches of Black Prince weighed 7½ lbs. The prize for the largest bunch was awarded to the Trebiana, the weight of which was 4 lbs. 7 oz. The Barbarossa obtained the second prize, and the third was awarded to the Black Hamburgh, which weighed 4 lbs. 14 oz. Marchioness of Hastings was shown, but not quite ripe.

THE ADIBONDAC GRAPE.—Specimens of this new grape, of which so much has been said, were exhibited before the Pomological Convention last month. We did not have the opportunity to see the cluster, entire, but we tasted the berry, and, though not quite ripe, it appeared to be a superior grape,

almost entirely free of the foxy odor, with a thin skin, and a brisk fresh juice, approaching that of some of the more spirited foreign grapes. We wish to see more of it, before expressing a decisive opinion; but it certainly has the appearance of being worthy of attention. Could such a grape be found in the out-of-the-way place that has been stated as its native locality? To us it seems scarcely possible, and we think there must be some mistake in this respect.

GOLDEN HAMBURGH GRAPE.—Some appear to entertain doubts as to the good qualities of this grape. Having fruited it this season, and succeeded far beyond my most sanguine expectations, I beg to record my experience. With us the size of berry was about the same as a full-grown Muscat; not the Muscat we so often see, about the size of the old Sweetwaters, but large, and of a most beautiful amber color, slightly tinged at the stalk of the berry with faint purple. The flesh is firm, like that of the Black Hamburgh, but it has a sweeter and more delicious flavor. The stones separate freely from the flesh, when taken into the mouth. It is a free bearer. As regards size, the bunches are between the Muscats and Hamburgh, and approach the latter in shape. The only bad quality it has, if such it may be considered, is, that it does not keep well, proving, therefore, to be a summer grape. It may, however, be well to state that our vines have had the same treatment as Muscats. It sets freely, but, judging from my own specimens, I think it requires more heat than the Black Hamburgh to ripen it in perfection.

The above we find in the Gardeners' Chronicle, and it is a merited tribute to a really superb and delicious grape, which must find a place in the very smallest collection. Well ripened its berries truly resemble "drops of gold."

NEW PEARS.—Quite a number of new pears are fruiting for the first time this year. Many of them are large and handsome, and, if their quality equals their appearance, they will be decided acquisitions. We shall give a full account of all when ripe.

THE ORCHARD-HOUSE.

BY H. H. HUNNEWELL, ESQ., WELLESLEY, NEAR BOSTON.

MR. EDITOR,—I have read with much interest the articles you have lately published, of the Rev. Mr. Bréhaut's, on the Cordon Training of Fruit Trees, as Adapted to the Orchard-House Culture; and, although I fear his system is somewhat elaborate to be carried out fully in this country, except on a small scale, rather as a matter of curiosity and amusement, still, that they are full of instruction is very evident, and I notice, with pleasure, that you propose to republish them in a pamphlet form, accompanied by remarks of your own, for there can be no doubt we are much in want of more information and directions with special reference to our own climate, than we are as yet furnished with, either by Mr. Bréhaut or Mr. Rivers. Thus far, I should judge, the success of those who have erected orchard-houses has been only partial, hardly realizing the enthusiastic expectations raised by the extremely pleasant and attractive manner in which the latter named gentleman first presented the subject, a few years since, to the public, by means of his little Treatise on Orchard-Houses. And I think we may be safe in stating that it will be generally found that we have more difficulties to contend with in this country than they appear to meet in England; and furthermore, that the expense is likewise much greater.

It must be borne in mind, to begin with, by those who contemplate erecting orchard-houses, that they must not only be of a more substantial and costly character than the "glass roof sheds," made of boards, with cracks for ventilation, spoken of by Mr. Rivers, but also that it is desirable they should be supplied with some mode of heating, to provide for our great changes of temperature in the spring, even where actual forcing is not proposed. In my own case, I have extended the hot-water pipes from a grapery into the orchard-house, the two being connected; and, as they are not required in extreme winter weather, it meets the contingency, and answers the intended purpose perfectly well.

The constant attention and labor required during our excessive hot weather, in watching and watering the pots two or three times a day, with double the quantity of water necessary in England, will be found quite an item, to say nothing of pumping, which few are so situated as to be able to dispense with. And, in this connection, it must not be forgotten that the trees, which from any cause may not be in fruit one year, demand the same care and attention, thus materially increasing the cost of the fruit raised on the others.

The statement made by Mr. Rivers, that the finest flavored peaches can be grown and ripened in the house, as is well known, must be received with some qualification, and I think from my own experience the same may be said of Mr. Bréhaut's, that the only drawback to success arises from want of attention in "syringing, ventilation, and potting." Now I have certainly ripened under glass, what would be called fine peaches, but they are exceptions; and it will be generally found, I think, when we offer such to our friends, that their beautiful appearance first excites great admiration, but, in tasting, a suggestive change in the countenance takes place, followed by an awkward pause, and a new subject of conversation. Very early in the season, it is true, it is something merely to *see* a handsome peach, but later, when other fruits become plentiful, more is expected, and we must calculate to remove our orchard-house trees into the open air, an advantage which the new mode certainly possesses over the old-fashioned peachery. In conclusion, as you have justly remarked, it may be considered a settled point, that peaches can only be ripened in-doors at the expense of flavor. The only explanation of Mr. Rivers's statement is, I suppose, though it is not a very complimentary one, that the standard of flavor is not so high in England as here. The same remark applies, though perhaps not to quite the same extent, to apricots and plums, and still less to the nectarine, which suffers very little under glass, and the Stanwick I have found to be rather improved.

The great drawback to success seems to be, judging from what has come under my observation, that we get no fruit from a considerable portion of our trees, a point on which

very little is said by Mr. Rivers, and one which I imagine we may attribute mainly to the peculiarities of our climate. With trees that have been forced, and with the very early varieties, the blossom buds are inclined to swell in the autumn, if special care is not taken to keep the roots dry; but the greatest trouble is supposed to be occasioned by the great and sudden changes in the weather, early in the spring, when we have many days with the thermometer, in the house, under the effects of our bright sun, up to 80° and 90°, exciting the blossom buds, which thus become injured by subsequent severe cold, and do not set their fruit. In England, with their dull, cloudy weather, they are not subjected to these changes, and hence probably the silence of Mr. Rivers. To guard against this liability, where parties do not wish to force at all, or commence so soon, recourse is had to shading the roof of the house, to laying the pots down on their sides, covering them with mats or straw, and likewise to keeping them in a cellar, where they are protected from the sun and severe cold, and yet, with all these precautions, I have had no fruit from one-third of my trees; and I know of cases, with large collections, where, from one cause or another, little desirable fruit has been obtained the past two years.

Whether this is the principal or only cause of failure, I leave others to decide. I trust, with your experience and observation, you will be able to offer us such light and suggestions as will not only encourage those of us who have houses, to persevere in our efforts, but will induce others to build, so that orchard-houses shall become, if not as numerous as on the other side of the water, at least sufficiently so, that we may not be obliged to rely entirely on our New Jersey friends for the unripe peaches they send us, or upon the generosity of the curculio for the occasional plum he is sometimes pleased to leave for us.

We are glad to have the experience of one who has been as successful in orchard-house culture as Mr. Hunnewell. We quite agree with him as regards the difficulties to be experienced in our climate, but hope we may be able to assist the cultivator in overcoming them.—Ed.

IN-DOOR GARDENING.

FROM THE GARDENERS' CHRONICLE.

IN writing of window-gardening in the *Gardeners' Chronicle*, I have always been hitherto rather afraid of referring too particularly to the "in-door plant cases," because, though I am myself so fond of them, I thought that they were not at present sufficiently well known to be of at all general interest. So many inquiries are however addressed to me about them, that I hope some account of their management and arrangement may not be uninteresting.

These cases are so arranged that a strong root heat can be maintained at one end of the case, while at the other there is none at all. The different temperature of the two ends keeps up a constant circulation of the air and effectually prevents the plants suffering by dampness or stagnation, except in cases of very gross neglect, or in instances where delicate leaves have been suffered to touch the glass and so to be injured by the condensation of vapor on it. Their great charm of course is the facility afforded by the plan for heating, for bringing into flower and keeping in good health many tender stove-plants as well as delicate flowers, which would suffer from a dry atmosphere if kept on an open plant stand.

My own pet case, I confess, enjoys immense advantages—most lovely plants being continually provided for it by the kindness of Mr. Veitch, who thus affords me the opportunity of trying the success in it of many of the most likely plants to thrive there. This advantage indeed should be by rights to others as helpful as to myself—in affording the knowledge of the plants that have been actually tried and proved to answer well.

I now propose then to describe exactly the contents at present of my gayest plant case—the plants composing the group being all well suited as to the color and habit, and nearly all being well proved to succeed in it, as I believe that all will. The variegated hydrangea, the orchid, and the climbing fern, to be named hereafter, are however, as will be seen, experiments.

I will proceed, however, to give a few practical hints and details as to the process of filling these cases. And it may be well to begin by remarking that though, the first time of filling it, it is infinitely better to make the mossy surface the very last touch given, yet afterwards in altering the case it ought not ever to need to be disturbed, as even when the long tresses of moss seem to wander over adjacent flower-pots they may be raised, and returned again to their place upon the surface. In preparing the box itself for the plants' reception, there are two or three things worthy of remark.

1. One part being deeper than the other, there ought to be some charcoal provided in it, not only to enable the water to run down below the level of the roots of plants, but also in order to preserve that water pure, charcoal being for this particularly valuable. The smaller the pieces of charcoal are, the easier it will be to move and rearrange the plants in their box.

2. When heat is required, there is nothing that I have ever tried to be compared to silver sand for keeping the plants in health and retaining warmth. Sawdust, moss, pure cocoa fibre, sphagnum, and many other things, have each proved inferior to sand for this use. A mixture of cocoanut refuse, however, with the sand makes a very excellent soil for mosses and ferns to root into.

3. If in any place a rather large-sized flower-pot has to rest directly on the surface of the hot water case, a piece of thick drugget or of felt does very well, used as a mat, to protect the roots from scorching.

So much for the box filling. It is often useful to keep the places vacant for the larger pots by standing empty ones where they are to be—afterwards either sinking a pot in these if likely to be very often changed, or taking out the place-keeper and dropping the proper pot into the space it leaves. Dry sand should be poured in all round if the new pot is smaller than that withdrawn, as it is much better to allow no vacant spaces.

I have come to the full conclusion, that in arranging such things it is best to aim at forming one simple connected group. As flowers are thus most often surrounded well by

leaves, I endeavor to have a regular frame of green at each end of the case, and a green moss carpet for the flowers to rest on. All the brightness then is collected into the single "bouquet" that forms just the centre, and if other flowers do stray beyond it, it is always evident that they are only strays. By this means one can fully enjoy the exquisite form and grace and color of the lovely green things which lightly line each end, or creep along the glass in a festooning wreath. To do this effectively, the brighter colors must be of a kind that match. A most popular centre is formed of the *Dracena terminalis*, which answers in these cases the best of all plants I know—delighting in heat at its roots—and well repaying the trouble of occasional spongings of the foliage by the brilliant color which it then assumes. The only difficulty it presents is that of interfering a little in tint with very bright scarlet flowers; it does therefore best amongst pink and crimson flowers more of its own nature. For this color-reason alone then is my *Dracena* banished—a cerise azalea presents such attractions for a centre flower that it fairly possessed itself of that special place, and some beautiful spreading orchid leaves look very well indeed, sweeping out beyond.

I am sorry to say indeed that in the matter of that orchid I underwent a failure. Killed with kindness was near being the verdict. For in the cold weather lately when I crept near to the fire I carried the orchid with me standing upon my work table, and no orchid in its senses will endure being fried. I have since been told that it would have borne cold far better, and truly the very texture of its marvellously lovely flowers ought to have warned me not to dry it up. The flowers then shrivelled, and were all cut off; only the leaves look as lovely as ever still, and in my plant case I am trying hard to coax it into a fresh growth of flower buds, which with the *Lycaste Skinneri* is by no means unknown.

The sides of my case, however, to return to it, have chiefly evergreens. They clothe the glass walls so well and make so good a background. A rhododendron and a myrtle have been there all the winter. At the other end a climbing *Cissus*, a *Passiflora kermesina* and the *Lygodium scandens*—most exquisite of little graceful climbing ferns, with its trans-

parent delicate fronds. These little creepers are trained up sticks at present, but lines of black silk cord will be a better support when it comes to their wreathing along and around the top. A covering of Brazilian moss is preparing to overrun the whole of the warmer end, with little sprays of the pretty *Cassium* here and there asserting itself by its metallic lustre. At the other (cooler) end the *Lycopodium denticulatum* always grows most luxuriantly when it is allowed to be long enough undisturbed. *Pteris tricolor*, *P. argyræa*, *P. cretica albo lineata*, grow at the warmer side close to the glass in front, as they all like light and warmth. *Adiantum cuneatum* thrives delightfully always on the shadier side, and in the cooler part *Pteris tremula*, *P. serrulata*, and *Davallia dissecta* spread their green fronds about.

A beautifully variegated *Hydrangea japonica* is at the warmer end, and there still are a few tulips, and one or two pink hyacinths, as well as a *Gardenia*, which is growing nicely near to a red begonia, but the color of the group is certainly all gathered to the centre, where three azaleas entirely seem to furnish it. One (*A. Reddingi*) is a brilliant, thick petalled, rosy sort of cerise, shading into crimson, or reddening again into a brighter and darker scarlet, while its graceful, half-open buds and its waving branches fill up the place delightfully—one, (*Azalea magnifica*), with great white, rose-streaked flowers,—and one on the other side (*A. magnifica flore plena*) with perfectly white blossoms, exquisitely double, and looking like some most transparent lily.

Azaleas, rhododendrons, and camellias are, in fact, of all plants, most perfect for these cases. They always look so utterly fresh and dewy, and so unspotted—when they fade, they fall; and thus we have not the drawback of seeing a flower withering. And indeed they are so lovely! The Princess Alice rhododendron, for example, with the most delightful tinge of rose color, has a delicious scent, and such perfect shape and foliage as to be from year's end to year's end delightful to grow on. This plant, however, like all other evergreens of the kind, should always be turned out for awhile while hardening its wood, and making its next year's buds. With camellias, also, this is essential; at least

I have never tried to make any grow entirely in the cases, thinking it would be useless. When the growth is made, the hottest and sunniest window sill is a great deal more suitable to make the wood hard and barky.

There ought to be no difficulty in keeping up good heat. When it is not done there are two questions to be asked of the water-tank filler:—Did the water poured into the tank quite boil? (I have known it used milk-warm.) Was the tank previously emptied? (Sometimes it is left half full.) Easy as they are to think of, a new servant for instance doing it is perfectly unaware of these points being important.

Done properly, however, at 8 or 9 in the morning, and at 4 or 5 in the afternoon, it all goes on like clock-work, and should one filling be missed even, the heat is fairly retained for quite 24 hours.

I will now go on to say a few words on the management of the plants in the in-door plant cases—of course referring solely to the patent heated ones.

There are four things particularly that I find it necessary to avoid.

1. Closeness.
2. Wetness.
3. Faded flowers or fallen leaves.
4. Flowers and delicate foliage being too near the glass.

For the first, I find, judging by many carefully tried experiments, that it is much better to sacrifice a little of the heat for the sake of a better ventilation, and at the same time, the warmth at the roots of the more tender plants enables them to bear the lowered temperature without the slightest check. The glass sides on their part prevent any drying current, and keep in a great measure the warm and moist air confined.

In very cold weather of course it would be extremely dangerous to expose the plants often to a total change of air. At such times then I only raise the upper glass an inch or two. At the present time my plants do extremely well with the case quite closed at night, and taken off altogether at about 10 o'clock each morning, when the perfume of the flowers comes out into the room.

For wetness, I find that water is much more easily added than dried up, and a thick heavy steam is extremely different from a soft dewy vapor, and not half so desirable. My own plants certainly are never really dry, at least never when I can see to them; but at the same time they are seldom made very wet, as keeping the sand just moist appears to me to be all that they require.

In watering the case it must be remembered that naturally the sand on the heated side dries first, and I have sometimes been troubled by the surface seeming to be duly moistened, while underneath, just where dampness is most wanted, the sand is found to be all quite dry and powdery. I have often in such cases taken out a pot from the heated end and poured water slowly into the hole thus made, so as to fill it up somewhere about two inches; sometimes very rapidly, sometimes more slowly, the water is soaked up, and repeating this a few times the whole of the lower surface is moistened without drenching that at the top, which might cause too much steam.

I never water the larger plants over the leaves, and, though I know that this is contrary to all rule, I prefer also avoiding to water over even my ferns and mosses. It seems to me that the dewy vapor with which the case becomes naturally filled at night is amply sufficient, and remembering how in South America, for example, days and weeks may pass without a drop of rain, but with regular soaking night dews, I cannot but think that the nature of many of our tender plants is such as to accommodate itself best to such a treatment, and the flowers certainly, which revel in the dew, would be spoiled and stained by a drop of water.

Of course care must be taken to prevent too great condensation of the dew on the upper glass. If water does by chance collect there at any time too abundantly, the glass should be taken off and dried. But for preventive measures, a woollen cover, such as a thick piece of green baize laid upon the top at night, gives little trouble and saves all risk of dropping.

As to the unhealthy effect and the great unsightliness of decaying leaves and flowers, they are so apparent that it can

be only necessary to hint at the caution wherewith they ought to be removed, so as to prevent all danger of fine dust-like particles conveying seeds of mould to other plants standing near. It is curious, too, that while healthy plants may seem quite uninjured by such attacks, if one cutting or seedling of a rather yellow and unhealthy pot full begins at all to suffer, the chances are that the others will be hurt also. Dusting with sulphur, I may mention by the way, is a good remedy to be tried in such cases. This may be dusted on sometimes very easily with a dry paint-brush.

When air however is given, when there is not too much moisture, and when the flowers and leaves are prevented (except thick leaves of evergreens) from touching the glass sides, very little "damping" is likely to take place, supposing heat to be given, at least now and then.

OUR HARDY HERBACEOUS PLANTS.

BY THE EDITOR.

AMONG the brightest blue flowers, which always attract the attention of every lover of plants, are the Gentians, some of which are natives of our own meadows and fields, and form conspicuous ornaments wherever they are successfully cultivated in our gardens. Among the latter the *Gentiana crinita* is one of the loveliest of the tribe,—so exquisite in its form and coloring as to have had its merits sang by the poet, an eminence which few of our native plants have attained.

The foreign species are also exceedingly beautiful, with the deepest azure blue flowers; some of them, the early harbingers of spring, displaying their blossoms abundantly, and for a long time. Of these the *G. acaulis*, which is the especial object of our notice, is the most prominent, and deserves to be universally introduced and cultivated.

GENTIANA ACAULIS.

This beautiful plant (FIG. 17) is so common in Great Britain that it is used to considerable extent for edgings to

flower borders. Mrs. Loudon speaks of it justly, when she says, "it is so conspicuous from the beauty of its flowers, that few persons can pass it unnoticed." It is a native of the Alps, of Middle Europe, and as far north as Siberia. It is of very dwarf habit, the leaves lying almost flat upon the ground, and its flower stems are only a few inches high, terminated with a single flower, which is large and bell-shaped, and of the most intense blue, with a yellowish throat. It blossoms in April.

It is of simple culture; being an Alpine plant, it needs protection during our severe winters, and the plants should



17. GENTIANA ACAULIS.

always have a light covering of leaves, or strawy material, through which the wet can readily drain off, and prevent the rotting of the crowns. It likes a peaty soil, but will thrive in light sandy garden earth. It is propagated by dividing the roots, in spring or autumn. It may also be grown in pots, where it thrives well, giving the plants the protection of a cold frame in winter. In this way we have had small plants in a four-inch pot, covered with blossoms.

Other species that we have cultivated are the following:—

G. FIMBRIATA.—A native of the Caucasus. A pretty species, growing about a foot high, with blue flowers, which are fringed on the margin. It blooms during July and August, and is a very fine plant.

G. SAPONARIA.—This is our most common native species, distinguished by its large very dark blue flowers, clustered at the top of the stem, which never expand, but remain closed, resembling buds. The plant grows erect, about two feet high. It was formerly abundant around Boston, but is now only found in localities more remote from the city. It is a conspicuous and beautiful plant.

G. CRINITA is one of the finest of all the species, but it is only biennial, and rather difficult of cultivation.

SUBURBAN VISITS.

RESIDENCE OF CAPT. W. H. AUSTIN, DORCHESTER.—It is a real pleasure to look through a plantation of beautiful fruit trees, of whatever kind, but more especially so, through one of pear trees, systematically trained and managed. Of the thousands of trees, whether dwarf or standard, pyramidal or round-headed, which have been planted, probably few, if any, are pruned on a complete system. Many have not the skill to manage them; others have no leisure; a third thinks it "will not pay;" and others have no eye for the beautiful in a tree, beyond the dollars and cents that can be realized for the fruit. It is rare, therefore, to see a dozen perfectly trained and uniform pear trees in any garden; and we venture to say, almost impossible, to find two or three hundred trees, throughout the entire country, so systematically treated as Capt. Austin's.

We have, in previous volumes, given an account of our visit to his garden, and have fully described his mode of pruning, (Vol. XXV.); but as we always derive so much gratification from our visit to his grounds, we think our readers may like to share with us the gratification, as we are sure

they would could we adequately portray the beauty, symmetry, and perfection of his trees.

Capt. Austin's pear trees have been planted at various times since 1845, but are mostly from fifteen to eighteen years old. They are, with few exceptions, if not every one, upon the quince stock; such as do not succeed upon the quince being double worked. In this way he has many of the choice pears in bearing, not excepting the Dix. The trees stand, generally, in squares, and are planted in rows, eight or ten feet apart, and the trees six feet from each other in the row.

The trees are all trained, on what Capt. Austin calls the wine-glass pattern, or what is, in reality, a pyramid reversed, the limbs branching out from one point, to a uniform flat top, about seven or nine in number, at a maximum height, say of ten feet. The branches are stopped, each branch forming a sort of cordon, and nothing but short spurs are allowed to grow, every lateral being pinched off at the second or third bud. The trees are therefore equally balanced, and notwithstanding they are loaded with fruit, each branch has become so stout, from the continued stopping of the laterals, that it sustains the weight without the least danger of bending; and every tree has just the same erect and symmetrical appearance as if it bore no fruit.

None but a thorough lover of a beautiful garden, a zealous cultivator, and a systematic man, can have such trees. They are not obtained without constant attention and labor. Every side shoot is detected immediately, and shortened. The cordons, or branches, are continued to the desired height, when they are allowed to go no farther. Nearly the entire pruning is done by pinching off the young shoots, unless so hardened as occasionally to use the knife.

The pears Capt. Austin principally grows are the Duchess and Louise Bonne de Jersey, these being especially adapted to his style of pruning, making stout wood, and few side branches, requiring less time than other sorts; besides, they are fine fruits, and command a good price. The Beurré d'Anjou, Bartlett, Easter Beurré, and a few others, are grown in smaller numbers. Such pears as the Urbaniste and Winter

Nelis do not succeed so well on this plan ; they make too many shoots, and are impatient of the constant pinching. Beurré Hardy will undoubtedly succeed admirably, and also Doyenné du Comice, which Capt. Austin is now trying. With him every kind is forced into his system, but the labor is too great with such as we have noted.

The fruit crop never looked so well. The trees were loaded with magnificent specimens, hanging as evenly as if tied on by rule. The trees were in the highest vigor and health, and the opponents of Dwarf pear culture should examine these results of eighteen or twenty years' experience, to completely upset all their *theories* regarding the quince stock, and its value. All who have any doubts upon this point should inspect Capt. Austin's trees ; they cannot fail to be impressed with the conviction, that, in a skilful cultivator's hands, dwarf trees are not only very ornamental, but exceedingly profitable objects.

General Notices.

YOUNG GRAPE VINES, AND THEIR TREATMENT.—Speaking of young vines, and their treatment, Mr. Thomson gives very useful advice :—" The size of pot they should be shifted into depends on what they are intended for. If for planting out, an 8-inch pot is sufficient ; if for fruiting in pots the following season, the size should not be less than 8 inches, or more than 11 inches. I have seen at Floors Castle 14 bunches, averaging half a pound each, on a one-year old vine, in an 8-inch pot. Mr. Rose, however, told me that he kept the pot standing in a saucer, into which he poured guano-water, occasionally, till the grapes began to color. I have found a compost, the same as that recommended for the borders, answer admirably for vines in pots. When potted, they should, for a few days, be shaded, as the roots must suffer more or less in the process, and are not prepared to supply the foliage with the needful sap to resist the demands made upon it by a powerful sun. In March, or April, the temperature and general treatment, as to airing, should be the same as what will be recommended for the first year they are planted out in the border. Whether vines are intended for fruiting in pots or planting out, I consider that they should be stopped when, including their pot, they are six feet high ; the laterals, as they appear, should be stopped at one joint. These laterals will break again, and should be pinched, so as to leave another joint. The best position for such vines to grow is in the full blaze of the sun. I have grown

them trained up under the rafters of a pine pit, and found them prove very fruitful, and also against the back wall of a pine stove; but they will do well in any situation where they can have vinery or pine-stove heat, be regularly watered, have the full influence of the sun, and be kept free from red spider. When the canes become brown, and all the symptoms of ripening show themselves, the whole of the lateral branches may be cut off, care being taken not to injure the leaves that spring from the main stem, as their office is to fill out the buds that are to show the young bunches of fruit next season. When fairly ripened, say in September, and the leaves are getting an autumn tint, they may be removed and nailed up against a wall, provision being made that they do not suffer for want of water. From this position they should, on the approach of frost, be removed to an airy shed, peach house at rest, or some other shelter, where they can be kept cool, and at the same time protected from severe frost. Thus prepared, they are fit either for fruiting in the pots they are in, or for planting out in a border. If wanted for the former purpose, they may be cut back to five feet, including pot. Their roots should never be allowed to get dry during their season of rest, as is sometimes the case, nor should they have much water." The author is not, however, an advocate of growing vines in pots; except for special purposes, although he has himself grown 200 bunches of grapes in a house thirty feet long and thirteen feet wide.—(*Gard. Chron.*)

INARCHING GRAPE VINES.—Perhaps there is nothing that more perplexes amateurs and inexperienced gardeners than working one kind of vine upon another. They will find their difficulty removed by attention to Mr. Thomson's simple directions:—"When it is considered desirable to increase the varieties of vines in a house, the simplest way of doing so is either to graft or inarch them. For my own part I prefer the latter method; and by putting young wood to young wood, all that is necessary is to bring the vines to be united into a convenient position to each other, and to take a slice with a sharp knife off each, nearly half through their diameter, the wounds to be the same length; then bring their wounds together, so that at least two of their sides or lips are in close contact; then put a distinct tie above the wounds, and one below them, to enable you to undo the tie that is to hold the wounds together betwixt these two at any time, without the risk of destroying the embryo union that may be taking place; then with soft matting, thoroughly, and rather firmly, bandage the whole length of the wounds. The vines will swell as they grow, and this bandage will have to be slackened occasionally, when the importance of the two ties referred to will appear. The growth of the stock on which the new vine is inarched may be stopped at three joints past its point of junction with the new one. In nine cases out of ten the union should be complete in a month, when the bandage may be taken off, but the ties above and below retained for some time afterwards. When the young vine shows by its vigorous growth that it is deriving supplies of sap from its new parent, its connection with its own roots may be half severed, and by the end of the season cut off entirely. I have inarched young wood on to old, but do not

recommend it where young can be had conveniently. I do not consider grafting so certain a plan as inarching in the manner I have described; and, besides, it leads to a good deal of bleeding when the graft is put on just as the old parent vine is started into growth. I have raised seedling vines from seed, inarched them on old established vines the same season, and fruited them the next; when inarched, their stems were no thicker than stocking-wires.—(*Gard. Chron.*)

GRAPES, AS THEY ARE TO BE SEEN AT THE ROYAL HORTICULTURAL GARDENS AT CHISWICK.—There are men who are more competent than I am to express the pleasure they feel upon receiving a really valuable lesson in grape growing, but there are none more anxious or willing than I am to benefit by such lessons. Facts tell their own tales very plainly, and to some of us they are, at times annoying and unpalatable. It is not my intention to speak of all the varieties of grapes grown in that marvellous house at Chiswick, but to make a few observations upon such varieties as may be of interest to the general cultivator. Entering the house by the door which is approached from the walk intersecting the end of the ribbon border, I was for a minute perfectly paralyzed by the lofty magnificence and uniqueness of the scene before me—grapes, both black and white, clustering in such quantity, and of such quality, that I was almost inclined to doubt the declaration of Solomon, when he says that “there is nothing new under the sun.” After gazing for a few minutes at the vines and crop of fruit, as a whole, I began to examine them individually, and exactly over the door by which I entered are some magnificent bunches of the *Barbarossa*, with berries large and black, though the bunches still retain a few healthy green berries,—a sure indication of good coloring. This vine, be it observed, is grafted upon a *Hamburg* stock. To the left of this vine is another *Barbarossa*, upon its own roots, and carrying an admirable crop. The difference, however, in the appearance of the fruit under the different circumstances is very striking; that of the vine upon its own roots being altogether of a grizzly or brick-red color, indicating that, however satisfactorily they may color, they will not finish so well, or so soon, as those upon the *Black Hamburg* stock. A few yards further down the house, and upon the same side, is a fine rod of that very excellent vine, the *Trentham Black*. This vine carries 16 beautiful bunches, black and bloomed like an autumn sloe, a fact which ought to be enough to annihilate the common idea that this is a difficult grape to manage—even if there were not the ‘*Trentham Black*’ house at *Trentham*, which bears yearly testimony of its great productiveness and superior flavor. Further down the house still, and upon the same side, we come to a vine that has been, and still is, the object of much praise and much calumny, the *Golden Hamburg*. That this vine should be grafted upon a *Black Hamburg* stock I am quite convinced, but here it is upon its own roots, and carrying such a crop, that for quantity and quality is enough to make its hardest cheeked defamer blush, and hide his face under a consciousness of his own incapacity. The vine in question carries eighteen or nineteen fine bunches of fruit, which for color

and size of berry are unapproached by any white grape in the whole house. All who do not succeed to their satisfaction with this grape should see this vine, and learn the lesson (however humiliating it may be) that not the vine but practice is at fault. Those who are fortunate enough to be able to see this most wonderful house of grapes, will not fail to notice the great superiority of the Frankenthal over all other Black Hamburgs cultivated within it. A new early white grape was pointed out as the White Frankenthal, which Mr. Barron believes will surpass all other early white grapes yet known; but of course time alone can determine this matter.—(*Gard. Chron.*)

As corroborative of the above excellent management, we add the following account of the exhibition of these grapes, at the Society's Autumn Show, September 10:—

Of fruit, an extremely interesting collection of grapes was shown from the Society's conservatory at Chiswick, of which some account was given the other day. Among black sorts were Burchardt's Prince, Trentham Black, Morocco Prince, Esperione, Muscat Noir de Jura, Black Frontignan, Late Black (Armagh), Black Prince, Barbarossa, Black Monukka, a very large bunch; the little Currant grape of the shops; Frankenthal, a fine bunch; Black Hamburg, Strawberry grape, a small variety; Lady Downe's Seedling, Oldaker's West's St. Peter, Blussard Noir, Rouge de Provence, Prune de l'Hérault, Black Morocco, Mill Hill Hamburg, and Dutch Hamburg. Of white varieties, the collection contained Royal Muscadine, Muscat of Alexandria, Cabral, Reeve's Muscadine, Cabul, Raisin de Calabre, Ahbee, Golden Hamburg, a very fine bunch; White Frontignan; White Nice, Foster's Seedling, and Blussard Blanc. Of grizzly colored varieties, there were Tokay des Jardins, De Candolle, Grizzly Frontignan, Chasselas Rose de Falloux, Violet Chasselas, and Gros Gro-mier du Cantal.

In reference to these grapes we may mention that the bunch of Black Monukka, which weighed 4 lbs., was the admiration of everybody. It is an Indian grape, said to be excellent in flavor, and its berries, which are oval, are invariably stoneless. The Frankenthal was also in all respects a beautiful bunch, as was also that of the Black Hamburg. The former weighed 3½ lbs. and the latter 2½ lbs. Barbarossa and Black Prince weighed respectively 2 lbs. 7 oz. and 1 lb. 15 oz., and the Morocco Prince 1 lb. 13 oz. Among white varieties the Golden Hamburg stood conspicuous; its distinguishing points were fine form, both of bunch and berry, and its color equalled that of a well ripened Muscat of Alexandria. It weighed 2 lbs. In short a finer or more instructive collection of grapes than that under notice has never before that we can remember been submitted to public inspection.—(*Gard. Chron.*)

CULTIVATION OF THE TREE TOMATO.—M. Boncenne details his mode of cultivation as follows: "In April, 1861, I sowed some of the stiff-stemmed tomato; the seed came up well, and when the plants were strong enough they were planted out in the open border, about 16 inches apart.

They pushed astonishingly; but as I wished to show this interesting novelty at the horticultural exhibition of Fontenay-le-Comte, I planted six or eight in small pots, and afterwards shifted them into large ones; I gave plenty of water throughout the summer, and by the end of September I had a handsome shrub 20 inches high in each pot, loaded with flowers, green fruit and ripe. After the exhibition the weather became bad, and I placed the tomato plants in a greenhouse near the light; they made fresh shoots, and the fruits, still green when introduced, became of a fine red. When the weather became severe, growth was arrested; I kept the plants clear of dead leaves, and removed some small branches that had begun to decay. After the middle of January vegetation recommenced, and about the 1st of February I took off and struck cuttings separately in small pots in heat under a bell glass; they were rooted in a fortnight, repotted, and placed in a melon frame. I intend to plant them out as soon as danger of frost is over. If cuttings were struck towards the end of autumn, instead of January, I believe the young plants would grow throughout the winter, and would flower, on being planted out, as soon as the weather would permit. In that case ripe tomatoes could be obtained much earlier than they could by cultivating the common sort in the usual way."—(*Gard. Chron.*)

MUTISIA DECURRENS.—We understand that Mr. Veitch has the *Mutisia decurrens* blooming very finely in his nursery at Combe Wood, where it has lived unharmed through the past winter as a hardy climber without any other protection than that afforded by the surface over which it has been trained. When the hardiness of the plant, its free blooming character, and the large size and brilliant orange color of its flower-heads are taken into account, this may be estimated as one of the finest of hardy climbers recently introduced.—(*Gard. Chron.*)

LILIUM AURATUM.—Further plants of the splendid *Lilium auratum* have now been flowered at Mr. Veitch's Chelsea Nursery; and these have proved much finer than that which formed such an attractive feature at the last South Kensington flower show. The blossoms of these more vigorous plants, with the segments in their naturally recurved position, measure fully $8\frac{1}{4}$ inches across; they are deliciously scented. The sub-horizontal position assumed by the flowers when developing as their natural attitude, gives them even a finer appearance than was produced by the more erect-flowered specimen which was exhibited. An abortive growth in the axil of a second upper leaf on one of the plants in question, indicates that when better established this lily is likely to be at least two-flowered—probably more; and we hear also that Mr. Standish has some two-flowered plants coming on, of what is supposed to be the same species. So that we have probably in this new Japanese lily a much finer plant than has been suspected—fine indeed as its present appearance is.—(*Gard. Chron.*)

Gossip of the Month.

NEW WORK ON VEGETABLES.—We are gratified to learn that a new and very valuable work is soon to be published, describing upwards of one thousand varieties of vegetables, cultivated in the United States, with all the particulars respecting their origin, introduction, and value for garden or market culture. We hope to offer, in another number, some extracts from the work, showing its valuable character. It will be a most acceptable contribution to our garden literature.

AMERICAN POMOLOGICAL SOCIETY.—Owing to many engagements at the time of the meeting of the Pomological Society in this city, we were unable to be present at all the discussions, more particularly that on pears, and we regret to see, by a notice in the Country Gentleman, if correct, that we have been misrepresented by the President, unintentionally, no doubt. In the discussion on the Mauxion pear, that report says, the President stated that "Hovey regarded it as the same as Merriam." As we have not fruited the Mauxion, and do not know it, we could have never made the remark. We did say to the President, on a visit to his garden, that a tree bearing fruit, labelled Mauxion, we thought must be wrong, as it so closely resembled the Merriam, thinking that the wrong graft was inserted, or the label misplaced by accident. The Moore's pear being up for discussion, the President stated that "Hovey thought it distinct from Hosen Shenck." This is incorrect: the true Hosen Shenck of Mr. Manning, sent to him by J. B. Garber, thirty years ago, we stated to him, was distinct from the Moore's; but that the Hosen Shenck of Western New York, which we saw in his grounds in fruit, was identical with the Moore's, as is also the Eshleman, of Pennsylvania.

We regret that the President should have referred to *our* opinion at all, unless we were present, as he might misrepresent us, without our having an opportunity to make the correction until too late to prevent mistakes.

Obituary.

DEATH OF MR. JOHN TWEEDIE.—The English papers announce the death of Mr. Tweedie, at Buenos Ayres, on the 7th of April last, in his 80th year. Mr. John Tweedie was a native of Lanarkshire, and by profession a landscape gardener. He was, also, in his younger days, foreman at the Dalkeith Gardens, and subsequently, at the Edinburgh Botanical Garden. At the age of 50 he concluded to visit Buenos Ayres, having heard of the botanical treasures in that region, and in 1825 he arrived at that place.

Here he at first followed his favorite pursuit, and laid out the fine gardens of Santa Catalina, but subsequently commenced the exploration of the country for its botanical riches. Mr. Tweedie was the first to introduce the species of the verberna, from which all our present beautiful varieties have originated. He also sent home various beautiful plants, and continued nearly up to his death to enrich our gardens with the beautiful productions of South America. He suffered many hardships in his various excursions, but he lived to a ripe old age.

DEATH OF MR. A. SAUL.—We regret to record the death of Mr. A. Saul, of the Newburgh Nurseries, which took place suddenly, from the effects of a fall. Mr. Saul succeeded to the proprietorship of the Newburgh Nurseries, after the death of Mr. A. J. Downing. He was an industrious and skilful gardener, and an enterprising nurseryman. His death will be deeply lamented.

Societies.

AMERICAN POMOLOGICAL.

The Society met on Wednesday, September 17, at 12 o'clock, M., at the rooms of the Massachusetts Horticultural Society, at the corner of Washington and West streets, the President, the Hon. Marshall P. Wilder, in the chair. Mr. Leander Wetherell, of Boston, was appointed Secretary; Mr. C. R. Baker, of Dorchester, Treasurer, *pro tem*.

A Business Committee was appointed, consisting of Messrs. Thomas of New York, Lyon of Michigan, West of California, Goodale of Maine, Moore of Rhode Island, and Bacon of California.

The President invited the delegates to visit him this evening, at his house in Dorchester.

The delegates were invited, by the President of the Massachusetts Horticultural Society, to visit their exhibition at the Music Hall.

Committee on New Fruits was then appointed by the Chair, consisting of Charles Downing of New York, C. M. Hovey of Massachusetts, Robert Buist of Pennsylvania, J. A. Warder of Ohio, P. Barry of New York, E. W. Coit of Connecticut, and T. T. Lyon of Michigan. A long list of new members was then read by the Treasurer *pro tem*.

A Committee on Nomination of Officers of the Society was then appointed by the Chair, consisting of Messrs. Barry of New York, Perley of Maine, Coit of Connecticut, Buist of Pennsylvania, Barry of New Jersey, Pierce of Rhode Island, Lyon of Michigan, Perkins of California, Fisher of Massachusetts, and Worcester of Vermont.

The Report of the Treasurer was submitted and accepted.

The Business Committee reported an order of proceedings; as to the hours of sessions, 9 A. M. and 3 P. M. will be the time of meeting.

The meeting adjourned to 3 o'clock, to hear the Address of the President.

At the close of the Address the Committee on the Election of Officers reported the following list, which was elected after the discussion of a motion to amend, by striking out the names of the officers in the seceded States, made, discussed briefly, and withdrawn. The following are the names of the officers, with the omissions of the names of the Standing Committees:—

For President—Hon. Marshall P. Wilder, of Massachusetts.

Vice-Presidents—S. L. Goodale, Maine; B. F. Cutler, Pelham, New Hampshire; J. S. Cabot, Massachusetts; D. Read, Vermont; Silas Moore, Rhode Island; ——— Bacon, Connecticut; Charles Downing, New York; William Reid, New Jersey; R. Buist, Pennsylvania; E. Tatnall, Delaware; Charles B. Calvert, Maryland; Yardley Taylor, Virginia; Walter L. Steele, North Carolina; Wm. Schley, South Carolina; Richard Peters, Georgia; Jos. L. Moultrie, Alabama; Dr. M. W. Philips, Mississippi; S. M. Wheaton, Tennessee; Lawrence Young, Kentucky; Dr. J. A. Warder, Ohio; ———, Michigan; William Loomis, Indiana; T. W. Felt, Louisiana; C. R. Overman, Illinois; N. J. Coleman, Missouri; Geo. Worthin, Arkansas; V. T. Ambler, Florida; Robert Avery, Iowa; ——— Willey, Wisconsin; Simpson Thomson, California; Joshua Pierce, District of Columbia; Edward Hunter, Utah; Amasa Stewart, Minnesota; C. B. Lines, Kansas; William Davenport, Oregon; Thomas Affleck, Texas; Hugh Allen, Canada East; D. W. Beadle, Canada West; Robert Jardone, St. John, N. B.

Treasurer—Thomas P. James, Philadelphia, Pennsylvania.

Secretary—James Vick, Rochester, New York.

Executive Committee—President and Vice-Presidents, *ex officio*; W. D. Brinckle, Philadelphia, Pa.; Richard Peters, Atlanta, Ga.; M. B. Bateham, Columbus, Ohio; W. L. Steele, Rockingham, N. C.; S. B. Parsons, New York.

The next business was the Report of Mr. Barry of New York, the Chairman of the Fruit Committee, on a Catalogue of Fruits for Cultivation in the United States, north of the southern line of Virginia, Tennessee and Missouri, and east of the Rocky Mountains, including the Canadas. This is a very valuable Report; as it is printed for the members of the Society, it will be a work of standard reference. The Committee were unable to report on that part of the country south of the above line. They received Reports in aid of their work from seventeen States.

We have already stated, that we shall give a summary of their doings when the Society's Official Report comes to hand. In the mean time, we copy the brief Reports in the Boston papers, upon the Grape and Strawberry, being short, and perhaps of the most interest at this time.

GRAPES.

Native grapes were then taken up for discussion. Maxatawny, a white grape, was recommended as a fine early grape by Mr. James of Pennsylvania. It ripens earlier than the Isabella. It is named from a creek near Philadelphia. The Logan was next mentioned, and favorably endorsed. It ripens in Maine a week earlier than the Concord. The Hartford Prolific

was recommended as an early grape, and desirable for cultivation. It is improving every year in Hartford, where it originated. It is ripe the 1st of September in Massachusetts. It is the earliest grape grown. Mr. Goodale of Maine endorsed it strongly. Sells from twenty to twenty-five cents a pound in market. It is grown from Maine to Washington, and from Maine to Western New York. Allen's Hybrid. Its hybridity was doubted. It ripens about this time. It does not mildew. The Cuyahoga grape was next named, a native of Ohio. Mottle, from Kelly Island in Ohio, was endorsed. Grapes are ten days later this season than usual. The Delaware was nominated, and favorably endorsed by the members.

The Northern Muscadine was next mentioned, and not favorably regarded; in other words, it was strongly condemned. The Rebecca was named, and Mr. Hovey deemed it one of the best in prospect. The President spoke favorably of it. Mildew attacks the tender vines in their first stages. The Crevelling was endorsed as superior to any early grape. The Union Village was favorably mentioned, and is the same as the Ontario. To Kalon was next nominated, and pronounced better than the Isabella. It rots badly. It is known as the Carter. The Perkins was next considered. It originated in Bridgewater, in the Perkins family. It is about a second quality, and resembles the Muscadine in taste. Rogers's Hybrids, Nos. 4, 15 and 22. No. 15 is large and high flavored, preferable to No. 4. No. 3 is the earliest. No. 15 bears the largest bunches, said Mr. Ives of Salem, that he had seen of native grapes. No. 22 is exceedingly high flavored; ripens the same time with the others, ripening with the Hartford Prolific. It was objected to sending out new grapes by number. The Diana was considered a fourth rate grape by Mr. Parsons of New York.

The Oporto was commended as a wine grape—is hardy—but not a good table grape. Mr. Prince said all wines in California are made of one variety of grape. Mr. Barry said there is a large black grape in California, which is called the Black Grape of Sonora, identical with the Zinfindal. Dr. Houghton remarked on the Yeddo grape and the Mammoth Cape. The Marion and Brackett's seedling were favorably commented on. The latter is an early variety.

STRAWBERRY.

Mr. Prince discussed the sexuality, &c., of the strawberry, and presented a paper on the subject. It was referred to the Committee on Publication. Mr. Prince recommended Lennig's White as superior. La Constante and Triumphe de Gand were favorably considered. Mr. Hovey said the La Constante is unsurpassed in beauty, and the English say it is unsurpassed with them; he added that it is the only foreign variety worth cultivating. Dr. Houghton said the Triumphe de Gand is doing well about Philadelphia. It was, however, pronounced not a good bearer. It is a profitable plant for nurserymen, as it propagates rapidly, said Mr. Prince of New York, who added that he had not swallowed a Wilson for two years, and did not believe he could. Mr. Hooker, of New York, did not know how long the Wilson strawberry could be bought; but did not think much of it. Mr.

Barry said he had cultivated *Triumphe de Gand* for ten years—imported it, and he deemed it possessed of great excellence; bears a good crop the second year—fruit firm, and bears transportation well. Russell's Seedling was commented on by Mr. Thomas—berries twice the size of Wilson's, and is quite as prolific a bearer. Downer's is worse than Wilson's, and of very disagreeable flavor, said Mr. Prince. He did not deem the Russell as a desirable fruit. Walker's Seedling was recommended by Mr. Bourne of Rhode Island. Cutter's Seedling was commended by Mr. Manning, condemned by Mr. Hyde, and approved by Messrs. Prince, Parsons, Elliott, Clement, and others—it being the same as the Bunce. Messrs. Moore and Dewey of Connecticut approved the Hovey, as did Mr. Prince, who said it did well when fertilized by the Brighton Pine. Dr. Houghton said Hovey's Seedling is a leading market berry in Philadelphia.

VINEYARD CULTURE OF THE GRAPE.

Grape vineyard culture was taken up for discussion. Mr. Elliott of Ohio condemned the use of animal manures for grape culture. This is the cause of mildew. The application of lime and ground bone was recommended. It is recommended to remove surface roots. Subsoil ploughing and under-draining were recommended. Where this is done mildew and rot are not seen. The same was found true in Missouri as in Ohio. Planting 6 by 8, 8 by 10, and 10 by 12 feet apart, is recommended by different parties. Clay soil is better for growing grapes, when under-drained, than sandy soil. Surface roots are removed to give greater vigor to the roots below. A wire trellis is used for the vines. The upper wire is four feet high, with two others below it. Lateral training is recommended. The annual product is a ton and a half per acre, the first year, two tons the second, and three tons the third year, and are worth six cents a pound for wine. Four tons of Catawba have been grown per acre. Wire used for trellis is No. 9.

Clay soils, remarked Mr. Barry, are better than sandy soils, for grapes. Prune in June, and soon after the crop is gathered. It takes 13 pounds of Catawba for a gallon of wine.

Mr. Reid of New Jersey said the objection to animal manure is, that it makes too rapid growth of vines. In the south part of Europe the vine is not larger than a currant bush, said Mr. Prince. Ten feet apart is better than less. He condemned summer pruning, as worse than none.

Mr. Lyon of Michigan next remarked upon summer pruning, disapproving it. Mr. Clement of Massachusetts did not approve summer or spring pruning. Fall pruning is recommended as preferable, and this being done soon after the crop is gathered, said Mr. Elliott. The vineyard is no larger at ten years old than at five years.

The growth of trees in Southern Europe is as that of 5 to 3, as compared with America, said Mr. Prince. This would make a difference between the culture of the grape there and here. One man will take care of three acres of vineyard. Dr. Houghton of Pennsylvania did not believe vineyard cultivation is profitable. In Ohio, the crop sells from \$200 to \$250 per acre. Mr. Elliott spoke of \$400, and over, being realized per acre from the grape crop. On Kelley Island no sugar is used in making wine. Farmers think

favorably of vineyard culture in Ohio, planting from half an acre to thirteen acres. Dr. Houghton said, much money, about Philadelphia, has been lost in vineyard culture.

A man with a farm of five acres, three of it in grape culture, makes more money in Ohio, said Mr. Elliott, than a man with 150 acres on which he grows corn and potatoes.

In Europe, said Mr. Prince, there is but one species of the grape, while America has eight native species. Europe grows the Persian grape. He said he could produce four times as many grapes per acre as in Europe. Norton's grape is recommended as a hardy variety, indigenous to Virginia, and a good wine grape. Here the discussion was terminated.

It was voted to hold the next Biennial Meeting in Rochester, N. Y., in accordance with an invitation from Mr. P. Barry, pomologist, of that city.

The following Committees on Fruits were announced by the President:—

Executive Committee—President and Vice-Presidents, *ex officio*; W. D. Brinckle, New Jersey; J. G. Bergen, New York; S. B. Benson, Maine; S. B. Parsons, New York.

General Fruit Committee—P. Barry, Roxbury, Mass., Chairman; J. W. Adams, Portland, Me.; B. F. Cutter, Laconia, N. H.; Eben. Dwight, Dedham, Mass.; Silas Moore, Providence, R. I.; D. W. Coit, New Haven, Conn.; D. C. Worcester, Thetford, Vt.; W. B. Smith, Syracuse, N. Y.; William Parry, New Jersey; Thomas P. James, Philadelphia, Pa.; Geo. P. Norris, Wilmington, Del.; Charles B. Calvert, Maryland; Oliver Taylor, Loudon County, Va.; S. W. Westbrooke, Greensboro', N. C.; William Schley, South Carolina; D. Redmond, Augusta, Ga.; M. W. Phillips, Wilmington, Miss.; Wm. J. Keyser, Milton, Tenn.; Edward D. Hobbs, Louisville, Ky.; Robert Buchanan, Cincinnati, Ohio; William H. Loomis, Indianapolis, Ind.; M. L. Dunlap, Urbana, Ill.; Dr. McPherson, Allenton, Mo.; M. L. Comstock, Burlington, Iowa; T. T. Lyon, Michigan; Jos. L. Moultrie, Alabama; T. W. Felt, Bayou Sara, La.; George Worthen, Little Rock, Ark.; Thomas Affleck, Texas; J. C. Brayton, Wisconsin; S. Thompson, Nassau City, Cal.; Joshua Pierce, Washington, D. C.; Amasa Stewart, Minnesota; Edward Hunter, Salt Lake, Utah; James Dougall, Windsor, C. W.; Hugh Allen, Montreal, C. E.; C. B. Lines, Kansas.

Committee on Foreign Fruits—C. M. Hovey, Boston, Mass.; M. B. Bateham, Columbus, Ohio; R. Buist, Philadelphia, Penn.; L. E. Berckmans, Georgia; George Ellwanger, Rochester, N. Y.; H. E. Hooker, Rochester, N. Y.; Col. D. S. Dewey, Hartford, Conn.

Committee on Synonyms and Rejected Fruits—J. S. Cabot, Salem, Mass.; W. R. Prince, Flushing, N. Y.; L. E. Berckmans, Georgia; J. A. Warder, M. D., Cincinnati, Ohio; J. J. Thomas, Albany, N. Y.; Robert Buist, Philadelphia, Penn.; C. M. Hovey, Boston, Mass.

Special Committee on Revision of Catalogue—P. Barry, Rochester, N. Y.; J. S. Cabot, Salem, Mass.; J. A. Warder, Cincinnati, Ohio; Charles Downing, Newburgh, N. Y.; C. M. Hovey, Boston, Mass.; L. E. Berckmans, Georgia; William Reid, New Jersey; F. R. Elliott, Cleveland, Ohio; J. J. Thomas, N. Y.; M. L. Dunlap, Illinois.

EXHIBITION OF FRUIT.—The display of fruit was excellent. The President had upwards of 300 varieties of pears; Ellwanger & Barry, Rochester, N. Y., 100 of pears, and 50 of apples; T. T. Lyon, Plymouth, 100 of apples; the Rhode Island Horticultural Society, 170 of pears, and 140 of apples; W. Smith, of Syracuse, N. Y., 220 of apples and pears; W. Reid, Elizabethtown, had 255 of pears; Hovey & Co., 100 varieties of pears. Grapes were shown by a number of contributors, but few were ripe, except the Delaware, Concord, Hartford Prolific, and a few new sorts, elsewhere noticed.

Massachusetts Horticultural Society.

Saturday, August 2, 1862.—An adjourned meeting of the Society was held to-day,—the President in the chair.

On motion of C. M. Hovey it was voted that the copies of Harris on Insects, received from the State, be placed in the hands of the several Committees on Flowers, Fruits, and Vegetables, to be awarded as premiums, or in place of the Society's medal, as the recipient may elect.

Adjourned one month, to September 6.

August 22.—**EXHIBITION OF PHLOXES, &c.** The show to-day was very good, comprising phloxes, petunias, &c. Mr. Breck, the President, sent some very fine asters and gladioli.

The phloxes were excellent, very large trusses, and mostly new varieties. The first premium was awarded to J. Comley, but we have no list of the names. The second was awarded to Hovey & Co., who had *Triumph de Twickel*, *Mad. Vilmorin*, *Mad. Durdan*, *L^a Candeur*, *Julia Roussel*, *Mad. Marseaux*, *M. Edouard About*, *Louis Lierval*, *Rosy Morn*, and *Mad. Clerget*.

September 6.—An adjourned meeting of the Society was held to-day,—the President in the chair.

Delegates were chosen to attend the Meeting of the American Pomological Society, to be held in September, in this city.

A Committee of seven was chosen to nominate officers for the ensuing year, viz: Josiah Stickney, M. P. Wilder, Jos. S. Cabot, George W. Pratt, Capt. Austin, F. Burr, and E. Wight.

The following member was elected: B. C. Clark.

Adjourned one week, to September 13.

FLOWERS.—The exhibition of verbenas, asters, and double zinnias, for premium, took place to-day. The asters were unusually fine, and the verbenas superior specimens; the zinnias were very double, and showed how great an addition to the flower garden the improved varieties are. The Award of Premiums not being published we are unable to give only a portion of them.

The first premium for asters was awarded to Hovey & Co., who had thirty very superb flowers, in about twenty varieties.

The first premium for verbenas was awarded to Hovey & Co., who had the following new sorts among the 24: Blushing Bride, Dr. Sankey, Pearl of Albion, Mad. Herman Stinger, Negro, Hyde's Seedling, Star of the West, Mammoth, Dooge's Seedling, Nos. 1, 3, and 4, all very superb flowers, the first deep rich velvety black maroon, with conspicuous white eye, the best of its class yet raised, Leviathan, &c. &c.

The first prize for Double Zinnias was awarded to D. Zingerbel, who had some deep orange scarlet flowers, though not quite up in shape. The second to Hovey & Co., who had less variety, but superior flowers.

The Fruit Committee awarded the following prizes:—

AWARD OF PREMIUMS FOR FRUIT.

SUMMER APPLES.—For the best, to J. A. Stetson, for Bough, \$6.

For the next, to Walker & Co., for Williams, \$4.

For the next, to H. Vandine, for Red Astrachans, \$3.

SUMMER PEARS.—For the best, to W. H. Austin, for Tyson, \$6.

For the next, to H. Vandine, for Beurré Giffard, \$4.

For the next, to Hovey & Co., for Supreme de Quimper, \$3.

APRICOTS.—For the best, to J. A. Stetson, \$3.

BLACKBERRIES.—For the best, to G. Merriam, for Dorchester, \$5.

For the next, to J. Nugent, for Dorchester, \$4.

For the next, to J. W. Foster, for Dorchester, \$3.

CURRENTS.—For the best, to W. H. Barnes, for La Versailles, \$3.

For the next, to J. W. Foster, for Dana's Transparent, \$2.

For the next, to A. D. Williams, for White Dutch, \$1.

RASPBERRIES.—For the best, to J. W. Foster, for Knevet's Giant, \$4.

For the next, to W. H. Barnes, for Knevet's Giant, \$3.

Sept. 13.—An adjourned meeting of the Society was held to-day,—the President in the chair.

No business of importance was transacted, and the meeting was dissolved.

The THIRTY-FOURTH ANNUAL EXHIBITION OF THE SOCIETY was held at the Music Hall, on Tuesday, Wednesday, Thursday, and Friday, the 16, 17, 18, and 19th of September.

As heretofore, when held in the Music Hall, so well adapted to the purpose, the show was exceedingly fine, and presented, as a whole, when viewed from the galleries, a splendid scene. The ample area of the Hall was traversed by five long tables, the centre one longer and wider than the others. On this the plants in pots were handsomely arranged, and the two tables on each side loaded with fruit. Two tables on the outer side were also filled with fruit. The stage was fitted up with tables, crosswise, on which were placed the stands for cut flowers, each one higher than the other; the front one being devoted to the exhibition of foreign grapes, and choice bouquets. The vegetables were displayed on two wide tables beneath the galleries, running crosswise of the Hall. No attempt was made

at decoration, and beyond the want of the large bouquets which have heretofore contributed so much to the beauty of the fruit tables, there is but little necessary for any additional ornament. We trust, however, that another year, notwithstanding some may exclaim against the huge bouquets, they will be included in the schedule of premiums, and again ornament the Hall, breaking up the continuous line of fruits, which, however so fine in themselves, detract from the grand effect of the display.

The schedule of premiums offered by the Society at its annual term, had but a meagre list of prizes for plants; and, to render the Hall ornamental and attractive, additional prizes were offered, but so late in the season that those who had not already made preparations could not avail themselves of the opportunity. In consequence of this the show of plants, though very fine, was not so select as it would otherwise have been. Cut flowers and dahlias were splendid. Pears were never seen in anything like the quantity or perfection of the specimens. Apples were also splendid. Peaches good; grapes excellent, but the vegetables, though select, were hardly up to the show of 1860. We briefly notice the collections.

PLANTS IN POTS.—Messrs. Hovey & Co. contributed upwards of 50 plants, among which was the Pampas Grass, with five spikes of flowers, *Arália reticulata*, *Rhopala corcovadensis*, two fine specimens of *Eugenia myrtifolia*, eight feet high. *Dracæna terminalis*, *Chamærops Fortunei* (the Chusan Palm) four feet high, *Yucca aloifolia variegata*, and *Y. filamentosa* var. *Y. recurva*, *Y. Sieboldii*, *Y. nivea*, and *Y. gloriosa glauca*, ten *Begonias*, *Polypodium appendiculatum*, *Adiantum pubescens*, and *A. brasiliensis*, *Pteris argyræa*, *Gymnogramma tartarica* and *Lycopodium formosum*; *Cupressus Lawsoniana*, *Thuopsis borealis*, *Cineraria maritima*, &c. &c. From W. C. Strong, a collection of plants, mostly ferns. From the Cambridge Botanic Garden, a collection of plants, among them *Dracæna terminalis*, *Pincinctia glauca*, fine specimen, *Peristeria alata*, *Adiantum trapeziforme*, *Lycopodium apodium*, and *L. lepidophylla*, *Gymnogramma ochroleuca*, and *tartarica*, *Caladiums*, &c., &c. H. H. Hunnewell sent a superb Pampas Grass, with eight or ten full heads, displaying their light and silvery flowers in great perfection; also, *Cupressus Lawsoniana*, and *Washingtonia gigantea*. J. Comley sent a Wardian Case in very fine condition.

BOUQUETS.—Of parlor bouquets, a variety were exhibited, but only a few were up to the standard. The same may be said of the other bouquets. Messrs. Hovey & Co. carried off the prize for each. Various baskets of flowers, and some fancy designs, by ladies, contributed to the decoration of the tables and the interest of the exhibition.

CUT FLOWERS.—These were contributed in great profusion, and the several exhibitors kept their stands filled with fresh specimens every day. Among them the *Gladiolus* and Japan lilies were the most conspicuous. Washburn & Curtis, Hovey & Co., Spooner & Parkman, J. McTear, J. Nugent, and E. A. Story, were the principal exhibitors.

DAHLIAS.—The very favorable season has enabled our cultivators to produce them in the greatest perfection; such superior flowers were rarely,

if ever, exhibited. In the stand of Hovey & Co., who carried off the prize, we noticed such flowers as Ethel, Pluto, Queen Mab, Lady Douglas Pennant, John Dory, Geo. Elliott, Warrior, Alba Multiflora, the Flirt, &c., &c. Dexter Snow, of Springfield, sent a collection of Lilliputian Dahlias, and E. Flynn, of Lawrence, some fine flowers; Washburn & Curtis had some excellent flowers, but we did not obtain their names.

The award of premiums was as follows:—

AWARD OF PREMIUMS FOR PLANTS, &c.

CUT FLOWERS—not to exceed 200 bottles.—For the best display, and best kept during the exhibition, to Washburn & Curtis, \$15.

For the next, to Hovey & Co., \$13.

For the next, to Spooner & Parkman, \$11.

For the next, to J. McTear, \$8.

For the next, to J. Nugent, \$8.

For the next, to E. A. Story, \$8.

PLANTS.—For the best collection, of not less than twenty varieties, to Hovey & Co., \$25.

For the next, to D. Zingerbel, \$20.

For the best twelve species, to W. C. Strong, \$12.

For the next, to J. McTear, \$10.

SPECIMEN PLANT.—For the best, a kind for which no special prize is offered, to H. H. Hunnewell, for Pampas grass, \$4.

For the next, to H. H. Hunnewell, for Cupressus Lawsoniana, \$3.

For the next, to H. H. Hunnewell, for Washingtonia gigantea, \$2.

BEGONIAS.—For the best six varieties, to Hovey & Co., \$4.

For the next, to D. Zingerbel, \$3.

FERNS OR LYCOPODS.—For the best six varieties, to D. Zingerbel, \$4.

For the next, to Hovey & Co., \$3.

DAHLIAS.—For the best twenty-five varieties, to Hovey & Co., \$8.

For the next, to Washburn & Curtis, \$6.

For the best specimen Bloom, to Hovey & Co., \$3.

PARLOR BOUQUETS.—For the best pair, to Hovey & Co., a prize of \$5.

For the next, to W. H. Underwood, \$4.

For the next, to Miss Baxter, Milton, \$3.

HAND BOUQUETS.—For the best pair, to Hovey & Co., \$3.

FRUIT.—The show of fruit was superb; the pears were never excelled, and, we think, never equalled; many kinds, never before more than fair in size and color, were this year very large and beautiful. So large a portion was fine that it is difficult to particularize. Mr. Stickney's Bartlett's were very large, the 12 weighing 9 lbs. 6 ozs. The Sheldon, Beurré Hardy, and Moore's, from Hovey & Co., were superb, particularly the latter new pear, which has proved to be the greatest acquisition of the last twenty years. The De Tongres, from Messrs. Davis and Butterfield, were very fine, and the Beurré Bosc of Mr. Stickney huge enough. Apples were superior; the Gravensteins were uncommonly large, as were many other sorts. Hovey & Co. exhibited a new seedling of great beauty. Foreign grapes were excellent. Mr. Rogers, of Salem, had extra large bunches of Barbarossa, and

Mr. Turner, Victoria, though not well colored. Of native grapes, W. C. Strong sent the greatest variety, among which we noticed Allen's Hybrid, nearly ripe, Concord, Delaware, Rebecca, Diana, and Hartford Prolific. Fine Isabellas, from Mr. Wellington, of Cambridge, nearly ripe; also, from Dr. Underhill of Croton Point. The Rogers grapes were not exhibited. Mr. F. Dana had ripe Delawares. Mr. I. Reed, of Port Dalhousie, sent the Ontario, not ripe, which proves to be the Union Village, which we stated two years ago would probably prove synonymous.

ORCHARD-HOUSE CULTURE.—H. H. Hunnewell and J. M. Codman sent specimens of orchard-house culture. Mr. Hunnewell had peaches in pots, and a Beurré Clairgeau pear tree, both in fruit; all large and handsome. Mr. Codman sent peach trees full of fruit, showing what could be done under pot culture. The trees were well grown, very well pruned, and bearing a good crop.

PREMIUMS AND GRATUITIES FOR FRUITS.

APPLES.—For the best twenty varieties, of twelve specimens each, the Lyman Plate, to Asa Clement, Dracut, \$20.

For the next, to A. D. Williams, Roxbury, \$15.

For the next, to T. Clapp, Dorchester, \$12.

For the best fifteen varieties, to Josiah Newhall, Lynnfield, \$12.

For the next, to B. Bruce, Brookline, \$10.

For the next, to John Gilbert, Boston, \$8.

For the best ten varieties, to J. W. Foster, Dorchester, \$8.

For the next, to B. Harrington, Lexington, \$6.

For the next, to Hovey & Co., Boston, \$5.

For the best five varieties, to W. H. Barnes, Dorchester, \$6.

For the next, to W. W. Wheildon, Charlestown, \$5.

For the next, to J. W. Manning, Reading, \$4.

For the best dish of Apples, twelve specimens of one variety, for Gravenstein, to N. Smith, Weston, \$5.

For the next, for Fallawater, to J. A. Stetson, Quincy, \$4.

For the next, to E. H. Luke, Cambridgeport, \$3.

PEARS.—For the best twenty varieties, of twelve specimens each, to H. Davis, Cambridgeport, \$25.

For the next, to J. Gordon, Brighton, \$20.

For the next, to W. H. Austin, Dorchester, \$16.

For the best fifteen varieties, to Josiah Stickney, Watertown, \$15.

For the next, to J. R. Poor, Somerville, \$12.

For the next, to W. A. Crafts, Roxbury, \$10.

For the best ten varieties, to Augustus Parker, Roxbury, \$10.

For the next, to Azel Bowditch, Roxbury, \$8.

For the next, to J. Eaton, Cambridgeport, \$6.

For the best five varieties, to J. Nudd, Cambridgeport, \$6.

For the next, to E. A. Mudge, Brookline, \$5.

For the next, to R. B. Leuchars, Quincy, \$4.

For the best dish of Pears, twelve specimens of one variety, to Josiah Stickney, for Bartlett, \$5.

For the next, to W. R. Austin, for Bartlett, \$4.

For the next, to J. Eaton, for Flemish Beauty, \$3.

For the next, to J. W. Hollis, for Merriam, \$2.

PEACHES.—For the best collection, of not more than four varieties, to Asa Clement, \$5.

For the next, to F. Clapp, Dorchester, \$4.

For the next, to F. Dana, Roxbury, \$3.

For the next, to R. W. Ames, Roxbury, \$2.

PLUMS.—For the best collection, of not more than four varieties, to H. Vandine, Cambridgeport, \$5.

For the next, to T. Hastings, East Cambridge, \$3.

GRAPES, FOREIGN.—For the best five varieties, two bunches each, to R. W. Turner, Randolph, \$10.

For the next, to R. S. Rogers, Salem, \$8.

For the best two varieties, two bunches each, to W. H. Barnes, \$5.

For the next, to C. E. Grant, \$4.

For the best collection, not less than six varieties, to Mrs. F. B. Durfee, \$10.

For the next, to Oliver Bennet, South Framingham, \$8.

For the next, to Joseph Breck, Brighton, \$6.

GRAPES, NATIVE.—For the best, to W. C. Strong, Brighton, \$6.

For the next, to C. E. Grant, \$5.

For the next, to C. J. Power, Framingham, \$4.

For the next, to J. V. Wellington, Cambridgeport, \$3.

For the next, to Asa Clement, \$2.

GRATUITIES.—To Hovey & Co., for collection of pears, \$12.

To M. P. Wilder, Walker & Co., and H. Vandine, \$8 each, for collections of Pears.

To R. S. Rogers, Salem, for grapes, and N. R. Childs, for pears, \$6 each.

To Spooner & Parkman, E. C. Stevens, and Joseph Breck, \$5 each.

To C. M. Brackett, Newton, \$4.

To S. Sweetser, R. W. Ames, W. C. Strong, G. W. Ireland, J. Parker, E. A. Story, A. D. Williams, J. A. Kenrick, J. B. Judkins, \$2 each.

To C. M. Brackett, and John Savage, \$3 each.

To J. E. M. Gilley, H. B. Hill, D. A. Merritt, G. H. Cary, S. Oakman, D. W. Eldridge, R. S. Frost, E. Wason, J. L. De Wolf, \$1 each.

To H. H. Hunnewell and C. M. Codman, \$2 each, for specimens of peaches, orchard-house culture.

VEGETABLES.—Notwithstanding the prolific year, many vegetables were hardly up to the standard. There were no Hubbard squashes equal to last season. Tomatoes were good, and in great variety, the Tomato de Laye very fine. There were but few Cauliflowers. Of huge Squashes there were several; one from H. H. Hunnewell, weighing 158 lbs. We have no space for the list of premiums.

Horticultural Operations

FOR OCTOBER.

FRUIT DEPARTMENT.

SEPTEMBER WAS a pleasant month, unusually free from storms of wind and rain, and without frost. Fruit trees have ripened up their wood finely, and promise well for another year.

GRAPE VINES, in the earliest houses, will be soon ready for forcing. The border should be well manured, and protected with a good covering, to keep out cold rains, and before winter sets in it should have a covering of shutters, or boards. Make the fires light at first, avoiding hurry, which is sure to prove troublesome. Vines, in the grapery and greenhouse, where the fruit is all gathered, will need little other attention than cutting away superfluous green wood, taking off decaying leaves, and giving the usual care to the perfect ripening of the wood. The same attention should be given to cold houses, leaving the pruning till November.

STRAWBERRY BEDS should still be looked after, as it is at this season that the plants acquire maturity and force. Keep down the weeds, and where the plants are grown in rows hoe up the superfluous runners. If they need manuring dig in the manure this month. Plants for forcing should be placed in a dry, warm situation, where they can be protected from very severe frosts, and from heavy rains, keeping them rather dry.

FRUIT TREES, in pots, should be sparingly watered, so as to thoroughly ripen the wood.

ORCHARD HOUSES will now require more attention. Remove the trees in-doors, if they have been in the open air, and keep the house cool, and rather dry. Ventilate freely, night and day.

GOOSEBERRY AND CURRANT BUSHES can now be transplanted.

FRUIT TREES, of all kinds, may be transplanted as soon as the leaves begin to fall.

WINTER PEARS should be gathered before severe frost. If the foliage holds on well they may be allowed to hang on late; but if it falls they should be gathered at once.

INSECTS should be looked after. The canker worm grubs will make their appearance soon after frosty nights. Tar, or otherwise protect the trees, in good season.

FLOWER DEPARTMENT.

The month of October should find the plants removed to the houses, unless such as can be kept in frames. Arrange them in proper manner, and keep as cool as possible, unless wanted for very early blooming. A high temperature, at this season, is always injurious to the health of the plants. Air freely at all times.

PELARGONIUMS should have an airy place on a shelf, as near the glass as possible, keeping them cool, and rather dry.

CAMELLIAS will now require some attention. Keep the house rather cool, and water sparingly, syringing in fine weather. Arrange them so as to expose all parts of the plant as much as possible, and avoid crowding.

AZALEAS should have the coolest situation in the house, tolerably near the glass; water carefully, from this time until they begin to show signs of flowering. Keep down the thrip by fumigating with tobacco.

CHRYSANTHEMUMS should have a good sunny situation, and liberal supplies of water, occasionally giving liquid manure.

CINERARIAS, for early blooming, should be repotted immediately. Late stock should be kept on a cool shelf, near the glass. Fumigate for the green fly.

CALADIUMS should be dried off gradually.

FERNS should be more sparingly watered, at this season.

CACTUSES should be sparingly watered.

ROSES, just potted, should be kept in frames till the weather is cool.

IXIAS should be potted.

CALLAS should be repotted.

CUTTINGS OF VERBENAS, GERANIUMS, &c., should be put in, if not already done.

CYCLAMENS should be potted, and kept in a frame as long as the weather will admit.

BEGONIAS may be allowed to dry off, in order to check their growth, when there is but little room.

OXALISES, of all kinds, should be potted.

HYACINTHS AND TULIPS, for flowering in the house, should be potted soon. Plunge in a frame, where they can be protected, and bring into the house when they begin to grow.

NEAPOLITAN VIOLETS should be potted.

FLOWER GARDEN AND SHRUBBERY.

The lawn and walks should still have attention. Continue to cut the grass, as long as there is any growth.

BULBS, of all hardy kinds, may be planted this month.

DABLIAS should be dug up, and safely housed, before frost.

GLADIOLUSES should be dug up, dried off, and put away in bags, out of the reach of frost.

HERBACEOUS PLANTS, of all kinds, may be safely transplanted.

FLOWERING SHRUBS may be removed now.

PICOTEEs AND CARNATIONS should be removed to a frame.

DAISIES should have the protection of a frame.

TRITOMAS, ERYTHRINA, CANNAS, and similar summer blooming plants, should be taken up and placed away from the reach of frost.

YUCCAS, and other ornamental plants, in vases, should be removed to the house, or to a cool, dry cellar.

ORCHARD-HOUSE CULTURE.

HAVING completed the publication of M. Bréhaut's work in a recent number, and having also stated that it was our intention to issue the same in a volume, with some additional remarks, applicable to our different climate, we proceed to offer some other suggestions, which will be embodied in the work. We do so now, as some engravings, not yet prepared, will delay, for a short time, the completion of the volume, and cultivators, anxious to know some of the details necessary to success may be impatient for the information.

The communication of Mr. Huunewell, in our last number, (p. 449) is timely and valuable. His experience fully proves all that we stated some time since in relation to orchard-houses, viz., that whatever Mr. Rivers might do with "glass-roof sheds," and other rough and similarly constructed houses in the climate of Great Britain, they would not do for us. When we visited Mr. Rivers, in 1844, he had then just commenced orchard-house culture, and he has, no doubt, greatly improved upon his first efforts, in this way. But his original treatise was issued before he had made so much progress. His houses, however, struck us as most ordinary appendages to a good garden, and, although they undoubtedly served to protect his trees from the prevailing late frosts, which nearly every year destroyed his pear blossoms in the open ground, the value of the crop would hardly compensate for the means of its attainment. Thanks to Mr. Rivers for his progressive ideas, and we can overlook his "glass-roof sheds" when he tells of the formation of orange groves, and fruit orchards, in handsome, commodious, and neatly constructed span-roof houses, one hundred feet long and twenty wide, of architectural proportions, and substantially built. Such, indeed, are structures of which any cultivator might be proud, and whether we call them orchard-houses, or fruit-tree houses, so long as they may be made available for all purposes of culture, that is sufficient. Economically considered, orchard-

houses would find few advocates in our climate; but as a means of securing certain crops of peaches and other fruits, which cannot be depended upon in our variable seasons, they are valuable additions to every complete garden, and are to be estimated as other garden structures, of a similar character, not as a profitable mode of obtaining fine fruit, but as a delightful system of culture, supplying the wealthy with the finest fruits, and affording amusement and recreation to the amateur in the planting, rearing, and management of his trees.

A great deal has been written the past year on orchard-house culture, in the English journals. Some have had the very best success; others only partially so, while the larger number have failed altogether. Some attribute their failures to one thing, and some to another. A great many attribute their ill success to the use of Gishurst Compound, a substance used for washing the trees to destroy insects; and no doubt injury may have been done to the young buds, by making it too strong. But, on the whole, so far as we can judge, the failure has been from the attempt to do, what, even in the climate of Great Britain, is difficult to accomplish—secure good crops without fire heat. That the winters are generally so mild as to render the wintering of the trees easy is well known; but then the springs are cold and frosty, and the damp and chill are sure to prevent the setting of the fruit. We notice, among other instances of the kind, a statement which would seem to confirm this, though nothing is stated to render our surmise certain. One writer in giving his experience of orchard-house culture for one year—the present one—states that he erected an orchard-house in the fall of 1861, and wishing to procure fruit immediately he was desirous of getting trees already well advanced. Accidentally he heard of a neighbor who had a fine lot of trees purchased of Mr. Rivers, as long ago as 1855, and, having never succeeded in getting any fruit, was glad to dispose of them. He immediately, he states, removed them to his house, and top-dressed them with rich soil. “Whenever there was a frosty night, during the winter, he put on fire enough to keep the thermometer above 28°, and gave plenty of air when the weather

was fine. In March, when the trees were coming into bloom, he pruned them. In the end of March and beginning of April the trees were in bloom. The weather was dull, cold, and damp, and he fertilized the blossoms with a hair pencil, gave plenty of air, and put in a little fire, if the night was frosty, to keep the thermometer to 33°." The result was an abundant crop on all the trees, which had not produced any for six years. Now, although the original purchaser may have had the means of heating, in the absence of any such statement, and the fact that Mr. Rivers, who furnished the trees did not recommend it, we infer he did not: hence his want of success.

The pot-culture of fruit trees is no new thing. It was by no means, as some suppose, original with Mr. Rivers. Sixty years ago Dr. Deil, the great Garman pomologist of the last century, described all the different fruits then known, from specimens raised by him in pots; and his observations on pot-culture are not only of the greatest value, but in the detail of management we do not see that anything at all has been learned since he wrote; on the contrary, some of his advice is of the very greatest importance, and, if known as it should be, would lead to great improvement in the growth of several kinds of fruits. His observations were the result of a whole life devoted to one object, and hence their value over the crude theories and partial experiments of many modern cultivators.

Our experience in the pot-culture of peach trees dates some fifteen years in advance of Mr. Rivers, who, if we recollect aright, says that it was "somewhere about 1849, that, having been successful in raising figs in pots, he saw no reason why peaches, pears, and other fruits, could not be grown in the same way." We are rather surprised at this acknowledgment of Mr. Rivers, when the peach had been cultivated in pots, and most successfully, too, for a long period by English gardeners, whose success had been chronicled in London's Magazine, a work with which Mr. Rivers was very well acquainted. It was from the knowledge of this success that we commenced the culture of the peach in pots, in 1833, and though with only an ordinary greenhouse to fruit them in, we were so very successful, that we described our mode of treat-

ment in the Magazine, (Vol. II., p. 241.) That article we can, at the present moment, recommend to the notice of all who are commencing orchard-house culture, for we have nothing to add to what we then wrote, and we have never seen, with any of the cultivators who have attempted the culture of peaches in pots, so many magnificent specimens as our own. We had upwards of two dozen pots, and, the second year after potting, each of them produced from three to five dozen of the most superb peaches. Assured of the simplicity of treatment, and the certainty with which an abundance of peaches could be produced, by the aid of a good cellar, and an ordinary greenhouse or grapery, we advised all our friends to cultivate their peaches in this way; and from that time their growth has been upon the increase, with what success the splendid specimens exhibited by Messrs. Holbrook, Simpson, and other cultivators, will attest.

Hence we know, from our own experience, that there is no difficulty whatever in the management of trees in pots so as to have an abundance of fruit, at all times. The whole want of success lies in the fundamental error of Mr. Rivers's orchard-house, free and simple,—that is, without fire heat. Orchard-house is a simple and pretty name, and we have no objection to it, but it really has no application unless it is simply a cold-house. If fire-heat is introduced it is then a forcing fruit-house, just as the old gardeners designated their structures the peachery, pinery, vinery, &c. &c. Let this be understood, and the name, provided it is short, is of little importance.

Mr. Hunnewell's experience substantiates all we have heretofore and now advance, in regard to this matter. He states that he did not get any fruit from a considerable portion of his trees, until he introduced hot-water pipes from his grapery, which he says, answers the intended purpose perfectly well. Such will be the result of all successful orchard-house culture. Mr. G. G. Hubbard, of Cambridge, has just raised and enlarged his house, and introduced a heating apparatus. The house was originally low, and rather flat, and cooled down so rapidly, from its small volume of air, that it was nearly as cold inside as in the open air. In the construction

of houses this important fact should not be overlooked. A low and narrow house is unfit for the purpose. It should be proportionably broad and high, so as to maintain a more even temperature, and prevent the sudden changes which are sure to occur in those of smaller dimensions. With hot-water pipes, or even a flue, the frost can be kept out in severe weather, the trees can be brought forward two to four weeks sooner, and that greatest of all dangers, cold damp, which prevents the setting of the fruit early, prevented. In fact, with the means of heating a house, failure can only be attributed to incompetent gardeners, or neglectful amateurs.

This brings us to the conclusion, that orchard-houses should be thoroughly constructed, capable of the most complete ventilation, and furnished with a heating apparatus. If to this we add a perfectly dry, cool cellar, where the trees can be wintered safely, as we know they can, till the time for introducing them into the house in March, or even sooner, not only peach trees, but cherry, pear, apple, and all other fruits, may be as successfully raised as the grape or fig.

HALF HOURS WITH OLD AUTHORS.

BY WILSON FLAGG.

CURIOUS EXTRACTS, SELECTED FROM OLD BOOKS, CONCERNING PLANTS AND THEIR CULTURE.

It has long been a received opinion (says an English writer) that there is such a thing as sympathy and antipathy in plants, and that some thrive best by growing near each other. But these are fallacies, for there is really no such thing as sympathy or antipathy in plants, as has been affirmed. The matter may be explained in this way, that wheresoever any one plant draweth strongly any particular juices from the earth, as it qualifies the ground, it benefits other plants adjoining, that draw other sorts of juices, the remaining juices being fit for the nourishment of these other plants. Thus they are benefited by their contiguity to one another, and hence come the

notion of sympathy. But when each plant draweth the same kind of nourishment, their proximity is prejudicial to each other, because they rob one another of the supply which the ground does not afford sufficiently for all. Hence was derived the idea of antipathy. This is the reason why coleworts are supposed to be inimical to grape vines.

It is reported by the ancient authors, that if you take the young shoot of a black vine, and likewise of a white, and split them through the middle, (taking care not to lose out the pith) and join the contraries together, binding them close with wax or clay, then graft them into another vine stock, they will shoot and bear grapes, the kernels or stones of which will be half black and half white.

Florentinus says, in his Georgicks, that if a hole be bored through the trunk of a vine, near the ground, and an olive branch be drawn into the same, so that it may receive from the vine the sweetness, and from the ground its natural juices and moisture, the fruit will participate of both kinds, especially if this experiment be tried upon a young vine, before it has borne any grapes. The fruit thus produced was called by the ancients *Eleo-staphylus*, or the Olive Grape. The same author says, that in the orchard of Marius Maximus, he both saw and tasted this fruit, and says further, that such plants, in his time, grew in divers parts of Africa, where they were called *Ubolima*.

Procuring Grapes without Stones.—The following is the experiment related by Democritus for procuring grapes without stones:—If you take a branch or twig of a vine, and cleave it just in the middle, and with some proper instrument, made of horn or bone, scrape out all the pith, so far as you plant the same into the earth, and presently binding up the parts again with paper, very light and close, and making a trench in some moist and proper soil where you may conveniently plant them, binding it up to some post or strong stake, that it may not be twisted with the wind, before it is firmly united, the slit will soon close, and the sides grow together again; but if you put into the hollow part, from whence you took out the pith, the head or clove of a sea-onion, it will be better; for that is of so glutinous a nature,

that it not only nourishes, but likewise binds and cements the sides together, like glue.

In confirmation of the above, Theophrastus says, if you rob the vine branch of the pith that is in it, whereof the stones are gendered, you may procure grapes without stones. Columella advanced the same notion in nearly the same words. Pliny also acknowledges the truth of this experiment; and other ancient authors affirm that the same process tried upon cherries and pomegranates will produce the same results.

To make Grapes grow on Cherry trees.—It is related by Tarentius, that if you engraft a black vine upon a cherry tree, it will produce grapes in the spring time, at the same season that it would have produced cherries. The following is the method of engrafting for this purpose:—With a large wimble or augur bore a hole through the body of the cherry tree, then take one of the best branches of a neighboring vine, and draw it through the hole as far as you can. Plaster it about on each side with loam, and let it so continue for about two years, before you cut it off from the vine, by which means it will thrive the better, as being nourished from its own mother root. When you find it grown and incorporated into the tree, and that the scar is grown over again, as it will be in about two years, then cut off the branch from the vine root close to the tree, and saw off the body of the cherry tree just above the place where it was bored. Then will you have grapes as early as cherries.

The same author says, that if the vine is engrafted into the myrtle tree, the branches which are so engrafted will bear grapes, having myrtle berries growing underneath them; but this must be observed, that the grafting must be near to the ground, otherwise, if it be grafted on the top of the myrtle tree, they will bear pure grapes, without any myrtles upon them.

It is related by another author, that if we would have vines to smell sweetly, or the grapes to be perfumed, the branches should be cleft, and sweet ointments or perfumes poured into them when they are planted. Both the vines and fruits will smell and taste according to the character of the perfume applied. Some adopt the practice of steeping or soaking the

branches in sweet oils and essences before they are planted or engrafted.

It is affirmed by another writer, that if we put beet roots bruised into wine, in three hours time it will become vinegar. On the contrary, he adds, that when you have a mind to restore the same, put in some good cabbage roots, and it will be quickly be restored to good potable wine.

It was a received opinion among the ancients, that many kinds of plants grew of their own accord, without any seed. They held that they were generated of the earth and water mixed together; and that particular countries were productive of divers sorts of plants and vegetables. Diogenes believed that plants were generated from putrified water and earth: and Theophrastus held, that rain by causing much putrefaction and alteration in the earth, was the cause of vegetable productions. It was reported that in the Island of Crete, the soil was of such a quality, as that by only stirring it about it would naturally produce a cypress tree. Pliny supposed that the waters, falling from above, are the real cause of every thing that grows upon the earth; and some of the ancients have related instances of earths, brought from divers places, which, being kept separate, have produced divers sorts of herbs, weeds, or vegetables, without sowing. Hence they inferred that these different soils were capable of generating without literal seeds, the particular plants which they produced.

Theophrastus gives his readers the following experiment:—Take several young slips of divers sorts of pomegranates, bruise them well with a beetle, until they will stick and hang together; then bind them up as closely as possible; and if you have joined them carefully without breaking them, they will unite and grow into one stem, and bear fruits of various sorts: but each will, in some measure, partake of the nature of the other.

In Naples they procure peaches which are half white and half red, by joining the sprigs of the two different trees, and inoculating them into one stock. Also roses, half red and half white, have been produced, by inoculating contrary sprigs upon one stock. From a similar mixture of the shoots

and grafts, it is said, by old authors, to be common in the orchards of Naples to see fruits which are half oranges and half lemons; also lemons which are half sweet and half sour. Cherries have sometimes been produced from a willow tree; so, also, has a bay-laurel grown out of a cherry tree; and the fruit of each has been particolored.

The notions were very prevalent in the middle ages, that if apples were grafted into the plane tree they will grow red; if citrons or lemons were grafted into a pomegranate, they will be scarlet; if into a mulberry tree they would be of a blood red color. Also, if figs be grafted into the mulberry tree they will become red; but the mulberry, which causes all fruits which are grafted into it to become red, will itself become white, if it be grafted into the white poplar tree, or into the fig tree.

Pliny says, by grafting the natural quince into the quince-pear, a compound fruit is produced, which he called *Milvianum*, and the only quince fit to be eaten raw. If a pear be grafted into a willow tree, (the grafting must not be in the main stock, but betwixt the bark and the trunk) it will bear fruit, but it will be very backward.

Pliny also tells us of a fruit, among the Spaniards, called *Malina*, which is a compound, produced by grafting a Damson plum into an apple tree, the fruit of which is outwardly like a Damson, but has the taste of an apple.

Potanus gives directions for raising compound trees on stocks, in this manner: Take seeds of several sorts, sow them in a pitcher, or a similar vessel; let them continue there until they are grown up; meanwhile, gently twist and bind the young shoots together, and let them be close tied, bind them well with clay that may help them to incorporate. By this means they will unite into one stock, and be covered with the same bark, and the fruit will be of various flavors.

Lord Bacon prescribes a ready method by which in one year's time we may procure a fruit tree capable of bearing good fruit: "Choose, (he says,) in May, June, or July, a fair, promising, fruitful tree, and select one arm, such as you best approve of, about three or four inches in circumference; cut the bark round, near the bottom of the branch, and take

it off for about four inches in length, quite round. Then, having in readiness a quantity of loam and horsedung, well mixed and tempered together, cover the place quite over with a coat thereof; as also some little part of the bark, both above and below the bare place; (or, if you mix the loam with some sea-onions, well beat or bruised in a mortar, it will be better) bind on the same with a coarse cloth, as close as you can, to prevent its falling off or cracking. Let it so continue, till about *Alhallontide*, at which time you may cut it off through the place which was barked, and set it in the earth. It will in a year produce a fine young tree, and bear fruit according to your desire.

Theophrastus writes, that about Heraclia, in Arcadia, there was a wine, of which, if men drank they became mad; and if women drank of the same, it made them barren. The same was affirmed of the wine of Troas, a place in Greece; and in Thrasus there is a sort of wine, which, being drunk, procures sleep. Another author advises the planting of medicinal vines, which may be good against the bites of venomous animals. For this purpose take a vine branch, cleave it to the lower part near the root, that the cleft may be about four inches long; pluck out the pith, and, in the place of it, fill up the cavity with hellebore; bind it up close, and cover the same with loam or a sea-onion, and bury it in the earth. This will grow and produce grapes which if eaten will make the body soluble; or, if you would have the grapes more operative in this way, instead of hellebore, put in some antidote or counter poison, then set it in the head of a sea-onion, and cover it with earth, watering it frequently with the juice of some counter poison, that the vine may draw in the greater plenty of that liquor, and the fruit will be the stronger in its operation.

Another method is recommended, to have grapes that shall be purgative; after the vintage is over, uncover the roots of so many vines as you think proper; take some hellebore roots, and beat them in a mortar, and cover the roots of your vines with it, after trimming and pruning them. Then cover them with a mixture of old rotted dung, ashes, and twice the quantity of earth: this will produce a grape that will be

purgative. If you make it into wine, mix a cup of it with water, and drink it, and it will answer your expectation.

To help germination, if you mix nitre (salt-petre) with water, to about the consistence of honey, and anoint the buds of fruit trees with it, they will sprout in about eight or ten days. The planting of such trees as apricots, peaches, and grape vines at the back side of a chimney, where a good fire is constantly kept, is also found to be a means of hastening germination; and if the branches of a vine be drawn into a warm room, through a hole in a window, the fruit in that portion will ripen sooner than if it were outside.

It has been observed that in ancient times, vines were much larger in the bole than at present, so that drinking cups have been turned out of them. History mentions several so large, that an image of Jupiter was made out of the trunk of one of them. These were probably wild vines; for those which are under cultivation are generally cut down when very large, because they are not after a certain size and age so profitable bearers.

The Tree of Dainties.—The following description is said to have been taken from Baptiste Portas Book of Natural Magic: "This tree was of a goodly height and thickness, being planted in a vessel fit for the purpose, and removable at pleasure. The mould about it was of a very fat, moist and fruitful nature, as necessity required to yield nourishment to such variety of fruits as was then produced; so that as well by the liveliness and strength of the plant itself, as also by the moisture and thriftiness of the ground, all things that were engrafted into it received sufficient nourishment. It had three branches, or arms; one of which bore various sorts of grapes, without any kernels in them, parti-colored. Some of them were medicinal, and good to procure sleep; others occasioned the eaters to be laxative, and others, again, were pleasant to the taste.

"The second branch, or arm, bore a peach, of a middling size, different both from the ordinary peach and the peach nut; without any stone in it, bearing in some places peaches, in others peach nuts; and if in any of them there was any stone, it was generally as sweet as an almond. On the third

branch, or arm, grew cherries, without any stones in them, some of which were sweet and others sour, and also oranges, of the like flavor and relish.

“From the bark of this tree grew out several sorts of flowers, roses, &c. The fruits were all of them larger than ordinary, and sweeter, both in smell and taste, flourishing chiefly in the spring time, they hung upon the tree, growing, after their natural season was past. And there was a continual succession of one fruit after another, even all the year long, by certain degrees; so that when one was ripe, there was another coming forth, the branches being never empty, but still hung with some fruit or other.”

POMOLOGICAL GOSSIP.

INTERNATIONAL CONGRESS OF POMOLOGY.—A great meeting of pomologists was held at Brussels, on the 24th of September last, a brief account of which is given in the *Gardeners' Chronicle*. We shall, undoubtedly, through the *Revue Horticole*, have a full statement of the doings of this Congress, which will probably be as interesting as those of the Pomologists of France,—and the results we shall lay before our readers. In the mean time we copy the account of the meeting. It will be seen that it covers a large sphere, delegates being present from fifty-eight different Horticultural Societies in France, Belgium, Germany, and other Societies, including one from Great Britain.

It will be noticed that the largest exhibition of pears only numbered 174 varieties, and that of apples, 201. This will show at once how much more interested and energetic our own cultivators are than those in Europe, for as long ago as 1854, Messrs. Hovey & Co. and Hon. M. P. Wilder, each exhibited upwards of 300 varieties of pears, and the late Hon. B. V. French, 180 varieties of apples. The writer freely admits that the “inferiority in quality and size” of the specimens sent by the Royal Horticultural Society “was incontestable.” With the recollection of the manner in which our American

fruits were alluded to a few years ago, when exhibited before this same Society, this will show, at least, the insincerity of their criticism. We are glad to see that English cultivators own up, and anxiously inquire "what chance has the climate of England against such odds?" meaning the climate of Belgium, which we are sure is no more favorable to pears than our own.

In conclusion, it is pleasant to see, at least, that English cultivators are aware of the condition of pomology in that country, and look upon the exhibition of 174 varieties of pears with wonder. If they do not wish to be a century behind American pomologists, they will do something more than send only 100 varieties to the next International Congress:—

The other great horticultural meeting was of more importance. It was the International Congress of Pomology held by the Federated Horticultural Societies of Belgium at Namur on September the 28th. Delegates from 1 Dutch, 1 English (the Royal Horticultural), 21 French, 10 German, and 25 Belgian Societies, attended the Congress; and of these 18 German, 10 French, 12 Belgian, and the English Royal Horticultural Society sent collections of fruit for exhibition.

The great object proposed by the Congress was the rectification of the synonymy and improvement of the nomenclature of fruits, the recognition of good kinds and elimination of bad, and encouragement in the search after new kinds. With this view the members attending it divided themselves into four sections, occupying themselves respectively with the nomenclature of pears, apples, grapes, and stone fruit, the number of sections happily corresponding with that of the great nations represented in the Congress; from each of whom a Vice-President was elected (Mr. Royer being President), and the Vice-President chosen for England being Mr. Blandy, of Reading, who holds a similar office in the Council of the Royal Horticultural Society.

The mode in which the practical results of this Congress are to be worked out is this. The Committees will each prepare a list of the names of the fruit adopted by them. These will be sent to the different societies represented, who will

add any kinds which appear to them to have been omitted, and return the list to the Secretary of the Congress. The additions, rectifications, and amendments will then be again considered—and in course of time the present chaos will assume something like order. Grafts of all the kinds which the Royal Horticultural Society may request are promised them.

The collections of fruit sent by so many different societies, and from so widely separated countries, have furnished a means of comparing names which has never yet been possessed, and the results of the labors of these sections cannot fail to prove of real value. It may be satisfactory to mention that the deputation from the Royal Horticultural Society have succeeded in making arrangements by which the greatest part of this extraordinary accumulation of collections will be brought over to the International Exhibition of Fruits, Roots, and Cereals, to be held at the Royal Horticultural Society's Garden at South Kensington on the 8th of October and following week. The fruit sent by the Royal Horticultural Society did it no discredit. There were 12 bunches of grapes of enormous size (nine from Chiswick and three sent by Mr. Ingram, gardener to Mr. Blandy), which struck the assembly with amazement. No encomiums seem strong enough to express the admiration which these elicited. Besides this the Society sent named examples of 201 kinds of Apples and 174 kinds of Pears, a number greater than that forwarded by any other Society—the next largest number being that sent from the Royal Gardens of Hanover, which consisted of 160 kinds of Apples and 100 kinds of Pears. But if England bore away the palm for number, her inferiority there in quality and size was incontestable. The finest examples of apples and pears shown were grown at a place called Namich, near Namur, by M. Monchœur, and are destined for South Kensington. His garden lies sloping to the sun, backed by white cliffs of limestone rocks, which reflect the sun with redoubled force; the Meuse rolls past its feet, and, exhaling moisture, tempers the heat and refreshes the soil. What chance has the climate of England against such odds?

Some little time ago, a good deal of interest was excited by the discussion in our pages of the system of budding the flower-buds of fruit trees on other stocks, with a view to their producing unusually large fruit, by drawing an unnaturally large portion of the sap to the bud. A very good example of the effect of this was shown by M. Lepere of Montreuil, who exhibited some large pears and apples produced in this way. He also has kindly promised to forward these to London, and the public may recognize some of the pears so grown by their bearing in a paler hue on their rosy cheeks, the words Leopold I., and Duchesse de Brabant, the inscription having been thus "negatived" by pasting paper letters on the fruit so as to preserve the portion covered from the sun.

The most extraordinary feature in the whole Exhibition, however, was a collection of 108 new Pears raised from seed by M. Gregoire-Nelis, and to this the highest honor which the Congress could bestow was awarded by acclamation. M. Gregoire-Nelis is well known for the success which has attended his experiments in raising new fruits from seed. He has been occupied with these for 32 years, during which time he has raised about 150 new kinds of pears of quality sufficiently good to be worth preserving, and part of 108 of these was now shown. Of course also thousands of bad ones have been raised by him and thrown away, but here were the select band chosen from the rest and taking rank among the best of the old kinds, whether for beauty or for excellence. These also will appear at South Kensington.

There were other newly reared kinds exhibited by other cultivators, but everything failed before M. Gregoire-Nelis's collection. That gentleman has done the Royal Horticultural Society the honor to offer to present them with a complete set of grafts of all these new kinds in spring.

NEW GRAPES.—The present year has not been so favorable for the grape crop, as that of 1861. The greater quantity of rain, together with a rather cooler summer, retarded their growth, and though the autumn was protracted and without frost, yet they have not matured so well as last season. In this vicinity the fruit is more advanced, and better than in some parts of the country, especially at the West, where the

mildew and rot have injured the vines so much that in many places there is not half a crop; consequently many kinds, usually very fine, are this year very inferior. Rogers No. 4 and 15, which last year were shown in very handsome condition, and quite ripe, have not been exhibited, up to this period. Recently specimens of the Kelly Island grapes, raised by C. Carpenter, Esq., were exhibited before the Massachusetts Horticultural Society. The specimens were sent by that gentleman to Mr. Kenrick, who exhibited the fruit. They were not very handsome specimens, owing to the causes we have named, but they were sufficiently mature, and enabled the Committee to form some estimate of these new grapes. The Committee will undoubtedly give their opinion in their Annual Report. In the mean time, we offer the following brief account of them:—

MOTTLED.—A medium size berry, and fair-sized, compact bunch; sweet and good; color, mottled, red and black.

MARY.—A medium sized berry, and medium sized bunch; rich and sweet, with a peculiar and very pleasant aroma. Color, yellowish white.

ELLEN.—A medium sized berry, and fair-sized bunch; similar in appearance and quality to the Catawba. Color, reddish.

LYDIA.—A medium sized berry, and medium sized bunch, rich, sweet, and very pleasantly flavored. Color, greenish white, or slightly amber colored.

The Mottled and Mary we thought excellent grapes, and if sufficiently early for our more northern latitude, well worthy the notice of cultivators. All of these varieties were quite free from the foxy flavor which characterizes too many of the new grapes.

THE ADIRONDAC GRAPE.—Specimens of this new grape were exhibited at the Exhibition of the New York State Agricultural Society, at Rochester, the first week in October. A writer in the *Country Gentleman* thus speaks of it:—

Fine specimens were presented by J. W. Bailey, of Plattsburg, N. Y. This new sort, which he thinks a seedling of the Isabella, possesses a good deal of the appearance and characteristics of its reputed parent; is nearly or quite free

from pulp, and of a very agreeable and pleasant flavor. The bunches are good and handsome. Most persons would prefer it to the Isabella, although the latter, when *fully ripe*, which is very rarely the case, is hard to excel. Some fruit raisers object to the Adirondac for being watery, and not quite so marked in its flavor as would be desirable; but if as early as is claimed for it, namely, a month before the Isabella, it cannot fail to become a favorite."

We were not aware, before this statement, that it was claimed as a seedling of the Isabella, having been found, where it was scarcely possible that the Isabella could have been introduced. It certainly more nearly approaches the foreign grape than any American variety, being quite as "watery" as the Chasselas.

BRACKETT'S SEEDLING GRAPE.—This new and very handsome grape has ripened its fruit the present season, proving it to be quite early enough to be relied upon for a crop. The magnificent size of the berries, equalling the Union Village, of which it is a seedling, and the handsome appearance of the bunches, with its great excellence, will render this a popular and most desirable variety. The growth is very vigorous, the foliage immense, and its combined qualities appear to be equal to those of any of the new grapes.

SEEDLING PEARS.—We have received, both this year and last, from J. Richardson, Esq., of Dorchester, several seedling pears, some of which possess great merit, and will probably prove valuable acquisitions. Three kinds recently sent to us were raised from the Bartlett, all from one pear; and they show how very variable this fruit is. One of them is large, handsome, and similar to the parent; another greatly resembles the Urbaniste, and the third is a pyramidal shaped fruit, quite acid, and unlike, both in form and flavor, the Bartlett. We shall refer to these seedlings again, and describe and figure some of the best. Mr. Richardson's experience disposes of the old notion, that seedlings of the best varieties are almost certain to produce inferior, or worthless pears.

THE PROGRESS OF HORTICULTURE. NO. II.

BY AN AMATEUR.

'Tis greatly wise to talk with our past hours.—YOUNG.

HAVING, in a former number of the Magazine, indicated a purpose to furnish some retrospective notes on the growth and progress of horticultural literature, the subject, after an unexpected delay, is resumed, with the hope of being able to prosecute it monthly, until completed.

The first Original Communication of the first number of the first volume of the Magazine, is by Mr. William Kenrick, of Newton, Mass., "On the Vine," in which are sketched the history, habits, and uses of the fruit, both as fruit and for wine-making, the mode of propagation, kind of soil required, mode of training, the writer concluding then, (Dec. 1834,) that, "with regard to vineyard culture, and for *wine*, the American grapes have a decided preference over foreign species and varieties," a decision still adhered to by vine growers.

In cold, moist, and strong soils the fruit is gross and watery. The growth of the vine succeeds well in cities. The reflected heat of the sun from the pavement augments the size, increases the flavor, and hastens the maturity of the fruit. Vines trained on vertical walls, and in confined and humid situations, are subject to mildew. [This should be remembered.] He objected to vertical southern exposure, preferring an inclined plane, or roof, to a perpendicular wall, or trellis; the latter should be elevated from a plane. An exposure to the morning sun, as well as its noonday rays, is desirable. These were Mr. Kenrick's views on Vine Culture, more than a quarter of a century ago.

The second article on the "Cultivation of the Vine," is by Pemberton, in which he gives his experience in open-air culture, as practised in his own garden, in Boston. As long ago as he wrote (1836) he said every man, whether living in the country or city, may grow, in perfection, this delicious and excellent fruit. He preferred cuttings of known varieties to roots, for propagation. He pruned the last of February, or the first of March, leaving but "three eyes." It is not the

cold, he maintained, that injures the vine, so much as the heat of the sun, in February and March. Warm days cause the sap to flow, and freezing bursts the vessels, or cellular formations. Vines should be kept cold until April, when freezing, to their injury, is not likely to occur. In training he preferred the horizontal direction, and all one way, when convenient, on a trellis, running from southeast to northwest. Leave the wood long on the northeast side, in order to shelter the grapes from cold northerly and easterly winds. On the southwest he removed all the laterals, tendrils, and useless wood, so as to give a warm, soft temperature. In this way he never failed of getting a good crop. Late pruning is injurious, he said: it should not be done after the first of July.

In the second number of the first volume of the Magazine, the Conductors published an illustrated article on the "Culture and Management of the Vine in Pots," which had then begun to attract attention, both in England and in this country. This mode of culture was then brought into contrast with border-culture, as it was then called. It was argued that pot-culture could never supersede the old method of border-culture, as the vine seeks a deep, rich soil, and its roots extend far and wide. Pot-culture has its advantages, but these are local and special, referring to early fruiting, and amateurs who have not ample grounds. Reference is made to an article on this subject, published in the second volume of the Transactions of the London Horticultural Society, by Mr. Knight. The views then expressed have been confirmed by the experience of horticulturists. Among others that tried this mode of culture, with success, were the Messrs. Buck, Stafford, and Mearns. The latter two gentlemen contributed valuable articles to Paxton's Register, on this subject. Mr. Mearns discovered what he called the coiling system, which is described in the Magazine. The great advantages of coiling vines in pot-culture are the time gained over the single eye system, and the greater number of feeders, or fibrous roots that are produced, and the more vigorous growth of plants. The Conductors then proceed to give at length their mode of pot-culture, with the success that crowned their experiments. These may be read with advantage, even now, aside from the

entertainment which a re-perusal of the article is sure to furnish.

Mr. J. W. Russell, of Cambridge, published an elaborate article "On the Propagation, Management, and Pruning of the Vine, in the Greenhouse, Grapery, and the Formation of Vine Borders." But as this subject has made great progress since, it is not deemed necessary to present a synopsis of the Communication, which was good in its time, as portions of it still are, and ever must be.

Mr. Francis Hay, of Charlestown, Mass., published an article "On the Physiology of the Vine, with Hints on a New Method of forming a Vine-Border." Of out-door culture, he maintained that "the best situation for a vine is upon a gentle slope to the south, the roots running south and the stem north, on an inclined plane or roof, raised 12 or 14 inches, by a trellis, above the plane or roof. "I have an Isabella, four years old, running on a roof, which produced three bushels of well-matured grapes, in 1834, the roots running southwest and the stem northeast, the cellar serving as a drain to the roots." This remark on draining should be noted, as it is very essential to successful grape culture. He adds, "For years I have observed vines in this vicinity in open culture, and have found those fruitful only, year after year, that grow on silicious or gravelly substrata, or an assemblage of small stones, beneath the surface of the earth." "Light and air are essential. Branches that are much shaded are vitally enfeebled, and cannot mature fruit. Pruning of the Isabella in autumn I deem unsafe, as the vine suffers from the exposure of open vessels. In preparing a border I recommend equal proportions of soil, manure and sand. Stirring the earth often in warm weather is essential to vine culture."

Mr. Samuel Pond, of Cambridgeport, Mass., gives an account of his, Pond's Seedling Grape, the mode of producing it, &c. He used the seeds of the Isabella and the Catawba. The fruit was first shown to the Massachusetts Horticultural Society in October, 1829, and was pronounced by the committee "a very superior variety." "The skin thin, pulp soft, berries round and purple, bunches fair sized, rather long; the wood short jointed and strong; leaves resemble the Hamburg in

shape and are destitute of downiness on the under side, common to native grapes."

Pemberton already cited, furnishes a paper on Seedling grapes, produced by himself. The one deemed the best was named Shurtleff's Seedling. "It was a great bearer, producing bunches of from one to two pounds weight, with shoulders. The berry was the size of the Hamburg, and of delicious flavor." Whether this, or Pond's Seedling are in cultivation now, the editor may be able to inform the readers of the Magazine.

Thus in the first volume of Hovey's Magazine of Horticulture, are seven articles on the vine, one of them, being published in three numbers, owing to its length. This shows that zeal and enthusiasm in grape culture is not a notion of recent interest, but one that has long occupied much space in horticultural literature, to which its great merits justly entitle it.

Mr. R. Manning of Salem, contributed an article on the "Difficulties of Identifying the Varieties of Fruits." "Pomologists so differ in their descriptions of fruits that it is impossible to reconcile names and synonymes." Much of this difficulty, remarked Mr. Manning, "arises from descriptions having been written of fruits by those who saw not the bearing trees or vines, they, the writers, having only seen such specimens of fruits as were sent them." Of books on fruits, he indorsed Duhamel as being of superior merit. He also remarks that "English nurserymen are greatly superior to the French." He mentions the circumstance that "eight specimen trees were ordered from France, of as many distinct varieties of pears, and when the trees came into bearing they all proved to be the St. Michael." He added, that he himself imported from France "seven of the same worthless pear, all marked, when received, as distinct varieties." He commended the catalogue of fruits issued by the London Horticultural Society as a standard authority. To be guided by such a work, the same fruit would cease to be known among pomologists by one name in Massachusetts, another in New York, and still another in Pennsylvania. The American Pomological Society is now doing much to overcome this difficulty.

Mr. Samuel Downer, of Dorchester, furnished an elaborate, illustrated and descriptive article on pears grown then (1835) in this vicinity. Many of these varieties were sent hither to Mr. John Lowell, by Mr. Thomas A. Knight, the then distinguished President of the London Horticultural Society. Mr. Lowell generously distributed them through the country. Dr. Van Mons of Brussels, then one of the most celebrated pear culturists in Europe, also sent several varieties. Mr. Downer stated that the London Horticultural Society had collected all the new fruits, amounting to over twelve hundred varieties, for correcting the synonymes. Mr. Robert Thompson, then at the head of the fruit department in the Society's Garden at Chiswick, and the gentlemen who gave the descriptions of fruits, figured in the London Pomological Magazine, sent scions of the superior varieties in the garden, to Mr. Manning of Salem. These are facts of great interest in the history of pear culture in the suburbs of Boston.

The lists of imported and indigenous pears described by Mr. Downer, are as follows, presented in the order described: Urbaniste, Beurré Knox, Forelle, Passe Colmar, Beurré Rance, Beurré Diel, named by Dr. Van Mons, in honor of Dr. Diel, a celebrated German pomologist; Capiaumont, the Bartlett, or as it was named in England, Williams's Bonchrétien, or bon-Christian pear. The two trees in the garden of E. Bartlett of Roxbury, were selected in England in 1799, by Mr. James Carter of Boston, for Mr. Thomas Brewer, who then owned and resided on the estate subsequently owned by Mr. Bartlett, and originated all the trees of that popular variety in this vicinity. It originated in the garden of Mr. Williams, a schoolmaster in Aldermaston, in Berkshire, England, now nearly seventy years ago. This pear is finely figured in the Magazine. The Marie Louise, Duchess of Angouleme, so named "because it was found in 1815 in the hedges of a forest of Armaillé, near Amiens in the department of Maine and Loire, when the reigning family of France returned the second time to the head of the government. The proprietor of the forest being struck with the size and excellence of the fruit, removed the tree to his garden, and its fruit soon be-

came popular." The Tillington and Bezy Vaet complete the list of exotics.

Mr. Downer then proceeded to describe "Native Pears," for which, he said, "I have a very strong partiality. They have originated in, and are inhabitants of, our gardens, and seem doubly valuable to us from the circumstance that they have no rigors of climate to contend with, but bear our most severe cold without injury; they are also constant bearers, and though not so highly flavored, nor as richly perfumed as those of Flemish origin, still they will, in a few years, as they deserve, be extensively cultivated."

He names first the Seckel, then growing (1835) on the farm of Stephen Girard, near Philadelphia. "Being invited a few years since to visit his place, I noticed the tree was in excellent health. It grows in strong rich soil on the border of a fine tract of land near the Delaware river. Probably the tree is about fifty years old."

The Dix is next named; "It originated in the garden attached to Madame Dix's mansion house, in the south part of Boston, and was named in compliment to the lady. It first fruited in 1826.

The Heathcot originated in the garden of Christopher Gore of Waltham, and came into bearing in 1824.

The Fulton originated on the farm of Mr. Fulton in Brunswick, Me., and was named in honor of Mr. Fulton.

The Andrews, called also Amory, and Gibson, "was introduced to public notice by Mr. Andrews, of Court Street, Boston, who had a fine garden. The tree was removed from Dorchester about fifty years since and I conclude it is one of our native pears, cultivated by farmers.

The Harvard, called also Sugar pear, and Boston Epargne, originated in Cambridge, Mass., and was named in honor of the founder of Harvard College.

The Wilkinson, "decided by our Horticultural Society to be a great 'acquisition to our gardens,' originated in Cumberland, R. I., on the farm of Mr. Jeremiah Wilkinson, and was named in honor of Mr. Wilkinson."

The Cushing originated on the farm of Washington Cush-

ing, of Hingham, about forty years ago and was named in honor of Mr. Cushing.

The Washington, called also Robertson, and Namen's Creek, originated on the farm of Gen. Robertson, at Namen's Creek, in Delaware, about twenty miles from Philadelphia, on the road towards Baltimore. Messrs. Lowell and Manning first exhibited it here.

The Lewis originated in the garden of Mr. John Lewis of Roxbury, after whom it was named.

The Bleeker's Meadow originated near New York, and was said to compare with the Seckel in quality and was twice the size. It proved, however, to have been greatly overrated.

The Clapp was raised by Mr. Wm. Clapp, of Dorchester, about twenty-five years ago, and was named in compliment to him.

Mr. Downer concluded his very interesting article by adding, "I have committed two great mistakes—one in holding on to old varieties too long; the other in cultivating too many varieties (one hundred and twenty-eight) without a better knowledge of their quality than that acquired from general information. The time has come when selections can be made with great certainty."

This article is one of great interest, written as it was, more than a quarter of a century ago. How many of these native pears have stood the test down to the present day? Perhaps the editor of the Magazine is able to state, which is a matter of special interest to all inquiring amateurs.

NEW GRAPES.

BY WM. KENRICK, NEWTON, MASS.

DEAR SIR:—I send you for publication in your excellent Magazine of Horticulture, a description of five valuable new native grapes; four of them, viz.: the Lydia, the Mottled, the Mary, and the Ellen, are the same which were sent me by Charles Carpenter, Esq., of Kelley's Island, Lake Erie, Ohio, and which I this day exhibited at the meeting of the Massachusetts Hor-

ticultural Society, and which were raised by Mr. Carpenter of that Island. Also the *Michigan* Grape, a vine of which was sent me by Mrs. E. F. Haskell, of Monroe, Michigan, a distinguished horticulturist, who has raised some new kinds from the Michigan. She is also the authoress of a new book sent me—"The Encyclopedia of Housekeeping," embracing gardens, fruits, &c.; probably the most complete work of the kind ever written:—

LYDIA.—A new and very superior white grape, which was very recently raised from the seed of the Isabella, by Charles Carpenter, Esq., of Kelley's Island, Lake Erie, Ohio, who has a large vineyard at that place. The growth of the vine and foliage resemble those of the Isabella. The vine is hardier than the Isabella, and yet in very severe winters it suffers sometimes on Kelley's Island, but not so much as the Isabella; the latitude of that Island being about $41\frac{1}{2}^{\circ}$ or 42° North. The climate being modified by the air of the lake, as it is on the seaboard about Boston by the Atlantic Ocean. The bunches are of good size, compact; the berries large, green, or greenish white, crisp and juicy, of good flavor; sweet. The fruit ripens two weeks earlier than the Isabella, producing fair crops; it hangs long on the vine until frosts, and till after the Isabella. The berries adhere well, and frosts do not injure them. I have it from other and very high authority, of an amateur, a gentleman of Cleveland, that the Lydia is a very promising new grape, highly esteemed there by those who know it; and, as we understand, rather earlier than the Cuyahoga. Mr. Elliot of that place has published, and affirms, that the "Lydia is the largest, earliest, and best white or light colored grape, of which the vine is perfectly hardy, that is now known." He predicts that it will be extensively grown, and more than others, when better known. A dispute has arisen in that region amongst horticulturists, whether this or the Cuyahoga is the best grape. We may, perhaps, venture to concede, that the Cuyahoga, which is but of medium size, is even a most superior grape as to quality (as good judges pronounce it equal to Chasselas). It is not, however, so large a berry as the Lydia, and possibly, as we have reason to understand, not quite so early.

The description of this, and the three following, are from MS. letter of Mr. Carpenter, and other reliable sources.

MOTTLED.—This new and superior grape was raised by Charles Carpenter, Esq., of Kelley's Island, from the seeds of the Catawba. The leaves are finely lobed, of a light color. The growth of the vine is strong; it is hardy, having never been winter-killed at that place; the bunches are of medium size, and very compact; the berries are of medium size, round, mottled at first, which afterwards changes to a fine purple, rather darker than the Catawba. The fruit is very sweet and juicy, sprightly, the pulp tender, and a very superior grape. It ripens a few days after the Delaware, and hangs long upon the vine after maturity. Certain amateurs, gentlemen of Cleveland, most reliable, who visited Kelley's Island in 1861, and compared this with the Delaware, which was growing side by side, have decided, that in their judgment, the Mottled grape was fully equal to the Delaware. The berry, certainly, is much larger than the Delaware, and the vine is more rugged. The Mottled grape was exhibited at the Massachusetts Horticultural Society, in Boston, October, 1862.

MARY.—This new and excellent white grape was also raised by Charles Carpenter. The vine is quite a strong grower, and perfectly hardy; the leaf of medium size, light colored, five lobed, and downy beneath. The bunch is quite large; loosely formed; the berry of medium size; round; of a color nearly white, with a fine white bloom, and translucent; flesh tender, with hardly any pulp; juice sweet, with a sprightly, excellent flavor. It ripens later than the Isabella; about with the Catawba or full as late. It should be ripened farther south than the latitude of 42°, where, as we think, it could not fail of being a very valuable acquisition.

ELLEN.—This new grape is a fourth variety raised by Charles Carpenter, Esq., of Kelley's Island. The foliage and the fruit in appearance much resemble the Fox grape; the vine is perfectly hardy; the fruit is of a dark color, nearly black, with very little pulp; not foxy at all, but of a peculiar agreeable flavor, very much admired by most persons. It ripens with the Catawba, and was raised from the seed of that variety.

MICHIGAN.—The Michigan is a very superior native grape,

which is supposed to have originated from seed in the garden of the late Rev. Mr. Haltstadt, a Lutheran clergyman of Monroe, in North Michigan, where it first became known in 1852. The growth of the vine resembles that of the Catawba, but is more vigorous; the leaf is like the Catawba, but rather larger, and the vine is more hardy; the bunches are of good size, with usually two shoulders or branches, and always with one, each of which is as large as that of the Catawba, as grown at Cincinnati, the bunch being altogether about twice or thrice as large as those of the Catawba; the berries being a shade redder than the Catawba, and have a much finer bloom. The perfume of the grape is delicious; the pulp melting, very juicy, sweet and rich; the juice has been compared to that of wine; the skin has no disagreeable flavor. It ripens at Monroe two weeks earlier than Catawba, and seldom or never fails, and ripens equally, while the Catawba seldom ripens there at all, and never equally. It keeps better than any other grape which is there known, and is more sugary in January than in September. It has good crops without protection, when the Catawba is fruitless from severe winters. It ripens usually from the 15th to the 20th of September. [MS. letter of Mrs. E. F. Haskell of Monroe, Mich.]

Dr. Kirtland describes the Michigan grape as superior in flavor and delicacy to the Diana, from specimens sent him by Mrs. Haskell in 1861.

PEAR TREES ON THE "WINE GLASS" PATTERN.

BY CAPT. W. B. AUSTIN DORCHESTER, MASS.

MR. EDITOR:—When I invited you, with other of our horticultural friends, to look at my trees, play a game of ninepins and take a social cup of tea, I certainly did not expect to see soon after in your Magazine, such a complimentary and extended notice of my trees, especially as you had on a former occasion referred to my method of pruning.

While I am gratified and pleased with your approval of my system and zeal as a cultivator, you will allow me to correct

one or two statements, and at the same time explain what I conceive to be the merits or advantages of my system, which you say "*I have proved by eighteen or twenty years' experience.*"

You state "the trees are all trained on what Capt. Austin calls the wine glass pattern, or *what is in reality a pyramid reversed.*" I cannot see the similitude, neither do they, as you state, have a uniform "flat top;" with these exceptions, your description and remarks are sustained by the facts and convey correct impressions to your readers.

Having made this, perhaps unimportant correction, let me now say that the outline or form I *design* to give is that of a wine glass or goblet, rounded up in the middle; near walks or fences where there is not space for a round form, they may be flattened at the sides, but always a little highest in the middle; never "flat on top;" you will perceive that as the arms or leaders which form the head of the tree *cannot* all start from the "same point" on the stem, (being from eight to twelve in number) the upper ones, or those which diverge and branch highest from the stem, are to form the highest part of the tree, observing that the centre leader (which inclines to run up) is always cut out at the start, thus forcing the sap into the other leaders or branches, giving strength to the lower limbs and laying the foundation of a low stocky, open tree. Having given to the tree this form at the outset, the young laterals, spray, or side shoots, are all to be kept pinched or clipped with scissors or light pruning shears (not a knife) to say three eyes, all during the growing season, and especially from about the middle of May to the 20th of June, when the growth is most profuse in spray, and requires the utmost vigilance; about the 1st to the 10th of July the leaders must also be topped, that is, cut off, say one half, more or less, according to size; if cut *earlier* than this, while in rampant growth, an eye would immediately break just below where cut off and the leaders start again at once, and in any event (if the tree is vigorous) will start again during the season, or at the second growth, and are to be checked or cut off as often as required; it is this *frequent stopping* of the *leaders* which gives size and strength to the branches to support the weight

of fruit, more than the "*constant stopping of the laterals*;" but both must be done to attain the best results, and unless there is felt a full conviction of the benefit, or a natural love for the art, or both together, (as in my case) it will rarely be done, as it involves more labor and system than is convenient with most to bestow.

Being the originator of this mode of training or pruning, and having practised it twelve or fifteen years on the dwarf, let me state what in my judgement are the advantages of this form of tree over the pyramid: 1st, its low, stocky, open habit, less exposed to the high winds which pass through and leave the tree firm; 2d, the larger surface and open space for the admission of light and air, so essential for good fruit; 3d, the facility of pruning, thinning and gathering the fruit, the tree being easily approached with an ordinary step-ladder, and every pear reached; 4th, the superiority of the fruit grown in this way, and the more certainty of annual crops; 5th, no large or severe pruning has *ever* to be done, the tree being constantly in shape, and no superfluous wood permitted to grow; 6th, vitality and vigor much increased, and the sap, instead of going into superfluous wood and over growth, is absorbed by the fruit, and forms new fruit buds for the next year.

The tall pyramid, to my mind, though symmetrical and graceful, suffers by comparison with the other form; being high it reels over by the wind, and the lower limbs usually stand out at right angles like the porcupine's quills, or flop down in the dirt, defying the approach of the ordinary step-ladder, and must be straddled to be got at; then again it is too close, compact, the upper limbs shading the lower, and the best fruit is generally up top, or on the centre leader (which takes the strength of the sap) where it is difficult to get at and most likely to be blown off.

As you truly remark, some varieties are not so well adapted to my method, and besides the "Winter Nelis, Urbaniste," and others, which make much and fine wood, I would add all subject to cracking, and especially the Beurre Diel, as not adapted, in fact I think would suffer from too great exposure of surface; they *need* considerable wood and foliage to shade the fruit from the hot sun which hardens the skin, and the first rain after a dry spell, would be certain to cause the fruit to

crack. I do not say that the Diel, Dix, St. Michael, Van Mons, and some others, would not, in *some* soils, crack with the best treatment, but I mean to say they require very different management from the Duchess and Beurre Langelier, which if left entirely to themselves and in rich soil, would hardly produce any fruit at all, only wood and blossoms. I would also instance the Glout Morceau as a variety throwing abundance of spray and inclined to make wood, and therefore requiring much labor to keep under, and yet if left to itself in good soil (and not root-pruned or transplanted) would be about as long as the Dix before bearing, not in fact till it had ceased growing, though it might *blossom* full each year. I have therefore practised my system upon this variety and obtained fruit much earlier. I might go on and particularize others, but my letter is growing long and I will only add that with what experience I have had, I should recommend to cultivators not to grow more than at *most*, two dozen varieties for *profit*, and study well the habits of these. I am aware that without such pioneers as Mr. Wilder, yourself, Cabot and others, we should not have had such a large collection to select from, and for one I feel under much obligation; it is this never-ending variety, varied habits, and condition of growth, method of keeping after gathering, and all that pertains to successful results, that adds so much to the interest of fruit growing, makes it a science, and is what we all so much enjoy.

PEACHES WITHOUT GLASS.

BY JAMES WEED, MUSCATINE, IOWA.

DURING the eighteen years we have been a constant reader of your valuable Magazine of Horticulture, we have been interested in all you have written or published relating to green-houses, peacheries, vineries, orchard-houses, &c., especially in all that pertained to the introduction of the cheap structures of Mr. Rivers, and have devoted much thought to the question of their practicability in the valley of the upper Mississippi—a question simply of dollars and cents, as necessity compelled us to regard it, living as we have done in a new

county, where the popular sentiment regards a farm that will not pay for itself, make its own improvements, build its own mansion and farm buildings, and pay at least ten per cent. on its improved value, as not worthy of an enterprising man's attention; as outside the great channels of *pork* and *beef* and *wheat*, nobody has capital.

Glass and lumber always cash articles, mechanics' wages very high, thunder gusts, and hail stones of enormous size, always in anticipation, we were as often bluffed off as we indulged in our favorite speculations, until, at last, we concluded to dispense with *glass* altogether, and devised, as we think, a much more natural and better system.

The plan contemplates sections of double straw roof, each about twelve feet long, with a closed air space in the middle and which will shed rain equally well on either side. The sections when closed over a row or rows of trees, pyramidal or trained on trellises, form a continuous span roof, with eaves near the ground, about twelve feet apart, the ridge being a similar distance from the ground. These roof structures, ranging north and south, and at suitable distances from each other, the ground between and around being heavily mulched with straw, will completely protect trees against injury from sleet, frost, or undue warm weather in winter. Ventilation when required can be given in mild weather, by suitable doors in the gables, or by opening the roof at the top, the sections being hinged to posts at the bottom. In spring the sections of roof are thrown over against each other, forming ridges over the mulched spaces, the trees now occupying the valleys. If danger of frost occurs, the roofs are again closed over them; if not, they are secured against high winds and remain open until closed again the next winter.

This system requires no artificial watering, no removal of trees to cellars, (which have always to be provided, and if specially, are expensive) no "laying the pots on their sides, covering them with mats or straw;" but the trees are allowed to come forward as the season advances, are sheltered by the ridges of "stored" roofs from high winds, and the valleys only have to be cultivated as the trees will root freely under the mulching in the spaces as in an outside border.

The plan has one important feature ; it will open or shut ; the latter it *must do*, sometimes *in a hurry* in this region.

The important fact you have constantly urged upon the attention of American pomologists, that our bright skies and summer sun always afford solar heat sufficient to ripen in perfection all the fruits of temperate climes, has convinced us that we need simply *protection* and *no glass*, to grow the peach, apricot and nectarine, or any other of the "*hardy fruits*" which so often fail, simply because they *are not quite hardy* against all the *exigencies* of our *very exuberant* but *exceedingly fickle* climate.

DESCRIPTIONS OF SELECT VARIETIES OF PEARS.

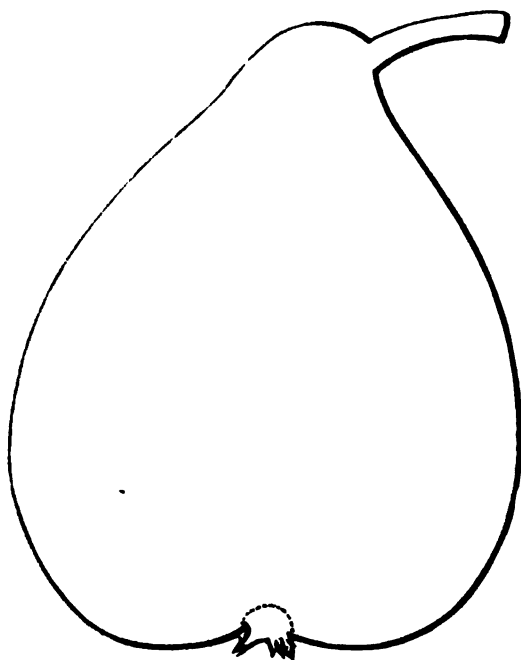
BY THE EDITOR.

THE present season has been most propitious for all fruits and particularly for the pear. The crop has been everywhere unusually abundant, and remarkably fine, but few except the Old St. Michael, even among several which often crack, showing any sign of such defect this year. This experience has shown the recuperative power of fruit trees ; even the cherry, which was so much injured by the severity of the winter of 1860 and '61, recovered from the loss of its leaves and buds, and produced abundantly ; and the Bartlett and some other pears which suffered so much as to lose the entire crop last year, and much of the wood, have ripened a crop as large as the most selfish cultivator could desire.

With this flourishing condition of the pear, many new kinds which had suffered with others, have for the first time fruited abundantly, and others that had not previously borne only inferior specimens, have ripened a good crop of beautiful fruit, enabling us to become more familiar with them, and offered the opportunity to test their quality. Consequently we shall add several new sorts to our already extensive list, and among them some of superior merit. We begin with such as have already ripened.

222. CATHERINE LAMBE'.

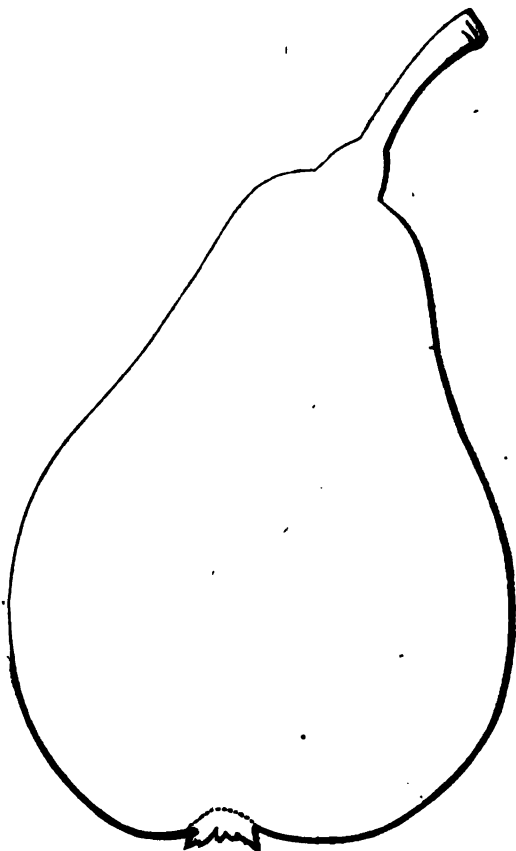
This (FIG. 18) is one of Bivort's pears, or at least so called, in the Belgian catalogues, for we have not found any recorded description of it. The catalogues call it "a medium sized pear, melting and exquisite, ripening in October," all of which we have found to be correct. In appearance it approaches the Andrews, though rather more oval. It is handsome, with a bright red cheek, and possesses the good quality of keeping a long time after being gathered. The tree is vigorous, hardy and a good bearer.



18. CATHERINE LAMBE' PEAR.

Size, large, about two and three-quarters inches long, and two and a half in diameter: *Form*, turbinate, elongated, tapering to the stem, swollen on one side: *Skin*, fair, smooth, greenish yellow, broadly shaded and mottled with vermilion in the sun, and thickly dotted with bronzy red specks: *Stem*, medium length, about half an inch long, rather slender, and obliquely inserted on the tapering point: *Eye*, rather large,

open, and slightly depressed in a very shallow basin ; segments of the calyx, short, stiff, incurved: *Flesh*, yellowish, fine, somewhat firm, yet melting, full of a brisk, sweet, slightly flavored juice: *Core*, small: *Seeds*, rather small, sharply pointed, brown. Ripe in October and November.



19. WILLERMOZ PEAR.

223. WILLERMOZ, *Album de Pomologie*, Vol. IV.

In a small pamphlet describing several new and old pears, by M. J. de Liron d'Arioles, we find a description and figure of this pear, corresponding with our specimens ; but trees received from other sources have proved to be the Grashin. We

have also received it under the name of Poire Jacobs. The Willermoz (FIG. 19) from its appearance, size and quality, promises well, and if the bearing qualities and growth of the tree when better known, should sustain its present estimation, it will be deserving of general cultivation. In size it comes nearly or quite up to the Louise Bonne, resembling it in form. It has not, so far, had so much color as the former, but it ripens of a deep yellow tint. The tree grows vigorously, and M. d'Arioles says that it makes one of the most beautiful pyramids. It was introduced by M. Bivort, and is stated to be one of the seedlings of Van Mons.

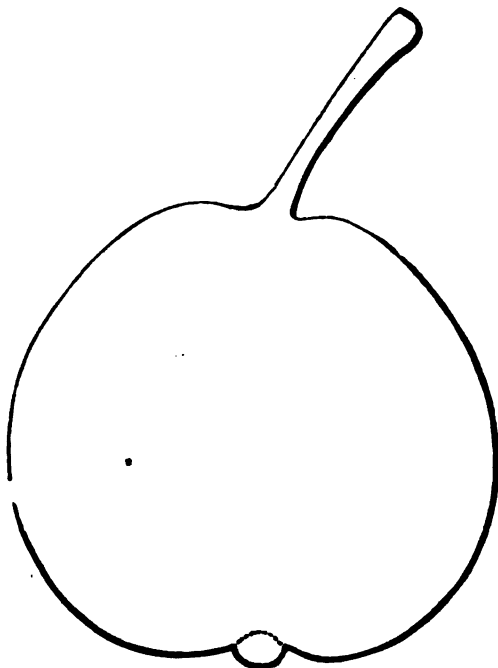
Size, large, pyramidal, slightly contracted near the middle, tapering to the stem: *Skin*, fair, smooth, clear green, yellow at maturity, very slightly touched with blush in the sun, and covered with very fine russet specks: *Stem*, medium length, about three-quarters of an inch long, stout, nearly straight, swollen at the base, and attached by a fleshy junction: *Eye*, medium size, open and set nearly even with the surface of the crown; segments of the calyx, short, broad, connected, stiff: *Flesh*, yellowish white, fine, melting, very juicy and sugary, with a slight musky perfume. *Core*, medium size: *Seeds*, medium size. Ripe in November.

224. DUCHESS DE BRABANT, (*Capenick*.)

It is unfortunate that pomologists should give the same name to several varieties of the pear; for although the addition of the name of the raiser may distinguish them, it is with the mass of cultivators likely to lead to confusion and error. In the Belgian catalogues there are three Duchess of Brabant pears; one by Capenick, one by Durieux, and the other, the grower unknown. Two of these have fruited in our collection this year, and both appear to be excellent fruits. The trees are yet small and upon the quince, and are not over vigorous, from which we infer that they will not flourish freely on that stock; consequently we do not think our specimens were up in size to what they would be on well established trees. This variety (FIG. 20) is a most abundant bearer, and is also exceedingly beautiful, with a bright vermilion cheek. In the catalogues it is stated to be "a very good acquisition

for orchards, on account of the vigor and great fertility of the tree."

Size, medium, about two and a half inches in diameter, and two and three-quarters long: *Form*, roundish, very regular and slightly depressed at the crown: *Skin*, very fair, clear yellow at maturity, broadly tinged with bright red in the sun: *Stem*, long, upwards of an inch in length, straight, thick at the base, and inserted in a very small, contracted cavity:



20. DUCHESS DE BRABANT.

Eye, medium size, open and slightly sunk in a small, shallow basin; segments of the calyx, stiff, projecting: *Flesh*, white, fine, rather firm, but melting, very juicy, rich, sweet and excellent: *Core*, small: *Seeds*, medium size. Ripe in October, and keeps for a long time.

IN-DOOR GARDENING.

FROM THE GARDENERS' CHRONICLE.

ONE of the prettiest ways of having flowers in rooms is perhaps the fashion of little hanging baskets. In flower stands and on tables, and even in window boxes, it is often difficult to arrange climbers nicely; they either require height in the way of trellises, which we find it hard to give, or they droop down in an ungraceful fashion. In the use of hanging baskets neither of these things happen. The climbers may if they like twine up the wires or cord, or they may still more prettily droop down round the basket. One of the prettiest things for this is the little *Campanula*, its bright blue flowers trail down neatly and yet closely into a lovely carpet, and if in the midst we place a pretty fern, its fronds wave over and make quite a perfect centre. I was told the other day that the *Adiantum cuneatum*, one of the very loveliest sorts of Maiden Hair, did well for such a purpose, and this would be, I think, the prettiest kind to try; although it is a stove fern it has been kept for years in a room window, and, in fact, it seems one of the most easy of its class to manage.

The wild pink geranium is another delightful and very aromatic basket plant, and the little blue lobelia, and the beautiful *Torenia asiatica* are also amongst those which droop down gracefully and show their beautiful blue flowers.

In arranging these baskets the grand thing, I think, is to give enough drainage. I always put broken charcoal, covered with a thin layer of moss, adding afterwards the soil that the plants require, and the charcoal occupying a space of perhaps two inches, a little water generally collects there. Any one used to watering these baskets soon comes to know by weight if they are dry or wet, and if by any chance one morning the soil should seem still moist, the daily watering ought to be then omitted.

Common black hair-pins are excellent pegs to use for fastening down the runners of creeping things, when we want not to show a quantity of sticks, and for tying up window plants the narrow dark green ribbon often used for book

markers is the best and neatest substitute for bass when a thin strip of it is not found suitable. I have often tried tying up plants with worsted, but that holds water too much and is also untidy looking, and threads of netting silk, though invaluable for trainers (on which the plants twine themselves), are too apt to cut the stems to be safe for tying.

Any baskets that are to be hung up ought to be fitted with an inner lining to contain the roots, and this should be surrounded by something calculated to prevent over dryness to it. I do not generally like wire stands for plants, but when they are used, and when some means is found of protecting the pots sufficiently, they may be made really beautiful by pink and white and blue *Ipomœas* climbing all about them. The different varieties of *Quomoclit* I think are the best to use for this, with the exceedingly pretty "*rubro-cœrulea*," which I have often grown, and consider a charming annual. It will not however bear a great deal of sun, and is especially injured by the hot summer rays striking upon the stem or collar when it is exposed. In placing it in a window box I therefore always manage to have one plant in front of it to give a little shelter. *Mignonette* thus proves a capital foster nurse to a great many plants.

The wire stand that I had last year was one of those in steps—three on each side, and a wide shelf beneath. Very green and spreading *ipomœas* were placed in the lower steps, roses, or geraniums, or fuchsias in the others, and two or three more *ipomœas* with *mignonette* below. The leaves and tendrils entwined themselves most gracefully round every wire, and ran round every edge, while the varied flowers that opened every morning and closed up at night looked extremely gay. Each of these pots of climbers contained several plants—the pots 32s, and the soil leaf mould. They require generally very abundant watering at the roots; indeed a day's dryness at any time caused some of the leaves to assume a yellow and faded look.

Our in-door flowers will now be coming into great beauty, and at least demanding something of summer treatment—somewhat perhaps of more frequent watering, more air no doubt, and if in flower more shading.

I think one of the prettiest window plants at this time of year is the little white *Deutzia gracilis*; its pretty snowy clusters, though they are not fragrant, wave about so gracefully. I had a plant of this some years ago, and having been cautioned to cut in my fuchsia some time after flowering, I extended the same treatment also to my deutzia, and was much distressed on finding I had snipped off all the hope of the next year's blossoms. I need hardly say that plants of this kind blossom next year on the young shoots of this, so that the more there are of these the more flowers we get. The favorite fuchsias now will take a good deal of water after their repotting, or after at least renewing the top soil in their pots, while starting them into growth. A sunny window and abundant air are the great things for these—as well as for fairy roses, which are such pets of every one's, and which will now be covered with their pretty buds.

I have found some injury often happen to window plants by the upper sashes of windows being down all day, people quite forgetting that this brings a double glass between the plants and the light, as well as causing the air to come from over head instead of letting it play in amidst the leaves. I think this is one reason perhaps why cottage flowers often answer so much better than those in our drawing-rooms, because the cottage plants are put just to stand outside upon the sill, where naturally they get abundant air and light till, late in the evening, they return to their usual shelter. Of course some precaution is necessary that the pots may not be blown down; I have generally had my own placed in boxes, which are just fixed by a screw to the window frame.

The interstices between the pots should be filled with something that can hold some moisture. Some people are very fond of giving their plants stimulants. I do not see that this does very much good to window gardeners, but I mention it here to caution them that even if they should intend it, it ought not to be till the buds begin to form for blossom; if they give it sooner they will be apt to have many more leaves than flowers.

The balsams now ought to be growing nicely; they have in windows a look of suitability, from their compact sort of

growth, that makes one rather fond of them; but I do not think they are very exalted in their social rank, and it is provoking to have window plants without scent.

The heliotrope certainly is safe from this last fault. Dryness is its great enemy. But fuchsias are really the most positive window plants; for from their nature they seem capable of being grown there as well as they can be anywhere, and the very prettiest fuchsias that I ever saw—graceful, drooping, fountain-shaped little shrubs covered with red bells, were such as had been grown without a scrap of greenhouse—struck in a hot-bed and then brought on in-doors.

I do not know why fuchsias now should generally be so shapeless. I wonder sometimes whether they get fair play at first, or whether they are allowed to stand in the midst of numbers, getting long and lanky.

Some sorts of fuchsia especially are only beautiful in their natural fountain shape—and this is spoilt directly if we begin our so-called training, or allow the plant to get drawn up with others. A 4-inch pot of nice well charred loam on a window-sill—moderate daily watering and careful turning round every day regularly so as to stop lop-sidedness, are the great requirements of these delightful window plants.

As the summer advances in-door gardeners sometimes find themselves rather cramped for room. The seedlings and the cuttings take up but little space, but when the contents of the nursery pot come to be divided into about a dozen distinct and separate plants, the plant stand seems to have grown very small, and all we can do is to choose out the best and dismiss the rest unsparingly. It never answers to have too many plants. One ill grown thing spoils a whole group of beauties, and none will grow well when deprived of abundant light. Some plants of course require sunshine while others prefer the shade, and while they are in flower most window plants should be preserved from sunshine. Still this only enables us to fill our different windows with plants that will thrive in them; it offers no encouragement for rows behind rows of unhappy straggling things which get scarcely any light, or for such close packing as leaves no room for growth.

A very good way of arranging rows of plants is to have al-

ternately a tall and bushy tree, and a low growing thing that makes a pretty surface. Begonias, fuchsias, geraniums, and roses are thus mixed up with pots of low campanulas, and of the blue lobelias, mimulus, and such things; and these prevent a bare appearance low down, while affording the larger plants more room to spread out above. If these plants are not in a box, indeed, there must be generally a very apparent want of uniformity; but I hope that no one will be thinking of window plants without boxes, and even in the use of boxes it is often difficult to make all the pots of one height, when, as is often necessary, their sizes are very various. My own readiest way of getting over this is to sink the pot into the empty mouth of another of the same size, or of a degree smaller; the sunken pot of course cannot go down far, and this is easier done than making a heap of anything in the box; since, unless sand is used, it requires very firm pressure to compress the moss sufficiently, and for all useful objects the moss does as well or better when not very closely packed.

I beg to recommend to window gardeners an exceedingly old and common-place geranium — *album multiflorum*. It is generally seen in a rather ragged state, as it does not bear any wind or draught without becoming shaky, but in a window or in a plant-case it really is a very nice old flower. The foliage is particularly large and dark and grows well down, while the flowers grow ten or twelve perhaps in a spike, and look very light and waxen. I have had a plant of this for nearly three weeks in my plant-case (put there just coming into flower) and its leaves and blossoms are in most perfect health. For a much grander plant, though also one most easy to keep in beauty, I ought to mention to-day the azalea "Model," as it is about now in blossom, and is so very lovely. A plant of this that Mr. Veitch was so good as to send me lately is perfectly glowing under the shadow of the darker foliage at the cool end of my case. The blossoms are very large and of a shaded rose color that is perfectly beautiful. By candle light this flower is one of the most brilliant, and it is very lasting on account of its thick petals. It has very dark glossy foliage, peculiarly suited to set off its flowers, and I certainly consider it the best room azalea that I have ever

had. Mine has been in full blossom with all the buds open for just ten days, and no flower at present betrays that it has been unfolded longer than since morning. *Azalea variegata* also is very pretty, especially for a place where the light shows through it, each petal being shaded towards the edge into a pretty white, just streaked sometimes with pink, which deepens down the centre. The plant, however, though it is very pretty, is in quite a different style to the beautiful "Model," which seems to me well named both for flowers and growth.

FLORICULTURAL NOTICES.

648. *BOLBOPHYLLUM CUPREUM*, *Lindl.* COPPER-COLORED BOLBOPHYLLUM. (Orchideæ.) Manilla.

An orchideous plant; with copper-colored flowers; appearing in summer. *Bot. Mag.*, 1862, pl. 5316.

A small flowered but pretty species, of low growth, and small dense spikes of copper-colored flowers. (*Bot. Mag.*, June.)

649. *RHODODENDRON FULGENS* *J. Hook.* BRILLIANT RHODODENDRON. (Ericææ.) Sikkim-Himalaya.

A half-hardy shrub; growing six feet high; with crimson-scarlet blossoms; appearing in spring; increased by grafting; grown in heath soil. *Bot. Mag.*, 1862, pl. 5317.

"Of all the magnificent series of rhododendrons which have reached us from India, none can vie in color with this, which, from the gorgeous hue of its blossoms received the name of fulgens from its discoverer, Dr. Hooker, who says of it, 'This, the richest ornament of the Alpine regions, in the month of June, forms a very prominent show on mountain slopes and spires, at an elevation of 12,000 to 14,000 feet, flowering in June, and fruiting in November and December. The foliage is perennial, of a bright green hue, and gives a singular hue to the bleak snowy mountain faces, immediately overhung by the perpetual snow, contrasting in August with the bright scarlet of the barberry, the golden yellow of the fading beech and mountain ash, the lurid green of the

juniper, and the brown of the withered grass. Whether, then, for the glorious effulgence of its blossoms, which appear to glow like fire in the few sunny hours of the regions it inhabits, or in the singular tint its foliage assumes at other seasons, it is one of the most striking plants of the inhospitable regions it inhabits." The leaves are deep green, ferruginous beneath, and the heads of flowers are very dense. It is probably very nearly hardy, and would be a valuable kind to fertilize our *catawbiense* in order to secure dark colored varieties. (*Bot. Mag.*, June.)

650. *PALISOTA BARTE'RI*, *Hook.* MR. BARTER'S PALISOTA.
(*Commelinææ.*) Africa.

A greenhouse plant; growing two feet high; with pink flowers; appearing in summer; increased by division of the roots; grown in light rich soil. *Bot. Mag.*, 1862, pl. 5318.

An almost stemless herbaceous plant, with large leaves, springing from the root, one to two feet long, attenuated at the apex, resembling most some of the *cannas*. The peduncle is short and terminal, erect, bearing a dense raceme of pale purplish flowers. It was one of the discoveries of the Niger expedition, and plants have flowered at Kew. (*Bot. Mag.*, June.)

651. *ANTHURUM SCHERZERIANUM* *Schott.* (*Orontiacææ.*) Guatemala.

A hothouse plant; growing six inches high; with scarlet flowers; appearing in April; increased by division of the roots; grown in light rich soil. *Bot. Mag.*, 1862, pl. 5319.

A very singular little plant, remarkable among its congeners for its small size and the brilliant color of the spadix and spathe, the leaves long, narrow, deep green, and coriaceous. The flower stems are scarlet, as are also the spathe and flowers. It grows only six or eight inches high. (*Bot. Mag.*, June.)

652. *OREODAPHNE CALIFORNICA* *Hook & Arn.* (*Laurineææ.*) California.

A half hardy tree; growing 30 feet high; with greenish flowers; appearing in spring; increased by layers; grown in rich soil. *Bot. Mag.*, 1862, pl. 5320.

In Great Britain this is a fine evergreen and hardy tree. It was first described by Douglas, who met with it in quantities in California, where it marks the transition from the

gloomy pine forests of the Northwest, and the tropical verdure of California. The whole plant is so strongly aromatic, that even during hurricanes, Mr. Douglas was obliged to remove from under its shade. The odor is camphor-like, and so pungent as to produce violent sneezing.

As a hardy tree it is a handsome and valuable acquisition, but it is doubtful if it will prove hardy in our climate. (*Bot. Mag.*, June.)

653. *ECHINOSTACHYS PINELIANA Brongn.* (Bromeliaceæ.)
Rio Janeiro.

A hothouse plant; growing two feet high; with yellowish flowers; appearing in spring; increased by division of the root; grown in light rich soil. *Bot. Mag.*, 1862, pl. 5321.

One of the Bromeliaceous plants, showy from its vivid scarlet stem and bracts, and handsome pine apple like foliage. It requires the heat of the stove. (*Bot. Mag.*, June.)

Gossip of the Month.

THE ANNUAL MEETING OF THE MASSACHUSETTS HORTICULTURAL SOCIETY, for the election of officers, was held on Saturday at their Library Room, corner of Washington and West Streets. The attendance was large, and the contest was an animated one, chiefly, however, with regard to the Presidency. There were three tickets printed, one of which was nominated by a committee appointed by President Breck, called the Report of the Nominating Committee, headed by Edward S. Rand, of Boston, for President, with C. M. Hovey, of Cambridge, for Vice-President; a second was headed by Mr. Rand, with another name substituted for that of Mr. Hovey for Vice-President, and wherever else his name occurred on committees it was dropped for other names; and the third ticket, called the members' nomination, was headed by Charles M. Hovey, of Cambridge, for President. The whole number of votes cast was 183; necessary to a choice, 92; Charles M. Hovey received 112 votes, and was declared elected, with all the other gentlemen named on the members' ticket. The Nominating Committee's Report, or what was called the Regular Nomination, received, it was said, less than a score of votes, while the irregular ticket, with Mr. Rand's name at the head, carried his vote up to 71.

C. M. Hovey, the new President, is a gentleman of rare attainments, of large and ripe experience, and of great practical skill in the arts of horticulture and landscape gardening, and his election is creditable to those who supported the members' ticket, and the office conferred upon him is the re-

ward of true merit. He is both favorably and well known to the horticulturists of America and of Europe, as the Editor of Hovey's Magazine of Horticulture; and, in addition to this, he is known as one of the largest and most successful fruit and floral culturists in New England, and besides has immortalized his name in strawberry culture, in the propagation of a new seedling, called "Hovey's Seedling," than which, as conceded by many fruit growers, there is no better variety of this choice and most delicious fruit in cultivation. Under such auspicious circumstances, this oldest and richest horticultural society in America cannot but be prosperous and efficient—as it is ought to be—beyond that of any former period of its mission of usefulness and great success. It is hoped that all the members will cheerfully and earnestly coöperate with the President and those in office under him in the noble work of diffusing useful knowledge among the people, and thus hasten on the day when every man owning land in New England shall be able to sit under his own vine and pear tree, and to partake with his family and friends of the luscious fruits and wines thereof.—(*Boston Courier*.)

AMERICAN POMOLOGICAL SOCIETY.—Correction. In our last number we alluded to the reports of the discussion, as published in the *Country Gentleman*. We thought them very incorrect, and embraced the early opportunity to correct them, so far as our own remarks were concerned. We are now glad to know, as we before supposed, that the reports in the above paper are entirely different from the official one as taken by a stenographer, expressly employed by the Society. In fact, they are entirely erroneous. In justice to Col. Wilder, the President, we copy that portion of the stenographic report in relation to the Hosen Shenck pear.

ELLWANGER. It is a pear of no character with us; occasionally, we meet with a very high flavored specimen; but I should not recommend it.

THE PRESIDENT. It is known here as Moore's Pound. "Mr. Hovey says there is another pear which is the *true* Hosen Shenck. The pear we are discussing here is the pear sent out to us from Western New York, as the Hosen Shenck, which with us is the same as Moore's Pound."

In a further report in the *Country Gentleman* we are reported as saying, when the Triumph de Gand strawberry was up for discussion, "that we would as soon eat a turnip as that variety." Now, although we are ready to admit that we don't think much of the Triumph, we never made any such remark. The report is manufactured to suit the opinion of the reporter, and when the Official Proceedings of the Society are published, a comparison of the two reports will show the value of that in the *Country Gentleman*.

The Report in relation to the Mauxion pear was similar, Mr. Wilder simply stating that Mr. Hovey said "it *looked* very much like the Merriam," which it does.

Massachusetts Horticultural Society.

Saturday, October 4, 1862.—The Annual Meeting of the Society for the choice of officers was held to-day, and resulted as follows:—

President—Charles M. Hovey.

Vice Presidents—J. F. C. Hyde, C. O. Whitmore, W. C. Strong, Geo. W. Pratt.

Treasurer—William R. Austin.

Corresponding Secretary—Eben Wight.

Recording Secretary—F. Lyman Winship.

Professor of Botany and Vegetable Physiology—John L. Russell.

Professor of Zoology—J. W. P. Jenks.

Professor of Horticultural Chemistry—A. A. Hayes.

Executive Committee—The President, Chairman; the Treasurer, J. S. Cabot, Marshall P. Wilder, Joseph Breck.

Committee for Establishing Premiums—Chairman of Committee on Fruits, Chairman; Chairmen of Committees on Flowers, Vegetables, and Gardens, and Parker Barnes.

Committee on Finance—Josiah Stickney, Chairman; Marshall P. Wilder, C. O. Whitmore.

Committee on the Library—Francis Parkman, Chairman; W. H. Spooner, Jr., G. W. Pratt, Leander Wetherell, R. McCleary Copeland.

Committee on Ornamental Gardening—W. R. Austin, Chairman; W. C. Strong; Chairmen of Committees on Fruits, Flowers and Vegetables; H. Weld Fuller, E. A. Story.

Committee on Fruits—J. S. Cabot, Chairman; W. C. Strong, J. F. C. Hyde, P. B. Hovey, Fearing Burr, A. C. Bowditch, Eliphalet Stone.

Committee on Flowers—E. A. Story, Chairman; J. C. Hovey, J. McTear, C. H. B. Breck, A. Apple, E. W. Buswell, S. H. Gibbens.

Committee on Vegetables—D. T. Curtis, Chairman; Franklin Winship, James Nugent, Azell Bowditch, Abner Pierce, B. Harrington, L. Whitcomb.

Committee on Synonymes of Fruit—Marshall P. Wilder, Chairman; Josiah Stickney, C. M. Hovey. J. S. Cabot, Chairman of the Committee on Fruits.

Committee on Publication—Corresponding Secretary, Chairman; Recording Secretary, E. W. Buswell, Chairmen of Committees on Flowers, Fruits, Vegetables, and Gardens.

The whole number of votes was 183; necessary for a choice, 92; C. M. Hovey received 112, and E. S. Rand, 71 votes.

Adjourned one month, to November 1.

Gorticultural Operations

FOR NOVEMBER.

FRUIT DEPARTMENT.

OCTOBER has been a very favorable month; the first frost occurred on the 21st, only two days earlier than the very warm October of 1861, and about twenty days later than the average of years. Fruits of all kinds were perfectly ripe, even the Isabella grape, and the crop has been abundant and fine.

GRAPE VINES, in the early houses, will now begin to break, and will require constant attention. Keep up moderate fires in cloudy days, but avoid at all times a high night temperature; a maximum of 55° is sufficient. Keep the border sheltered from heavy rains. Vines in the grapery and greenhouse may soon be pruned, cleaned of insects, washed, and tied up for the season. Vines in the cold houses will require the same care, if the wood is fully ripe; otherwise, care should be taken to get it as mature as possible. Vines in the open air should be pruned and laid down before severe frosts.

FRUIT TREES, of all kinds, should be transplanted this month; it is the best and safest period of the year.

ORCHARD-HOUSES should be kept cool by an abundance of air. Keep the trees rather dry. Pot fresh trees, if more are wanted, and to take the place of such as fail to grow well.

STRAWBERRY BEDS should have a final clearing, if weedy, and as soon as the ground begins to freeze should have a very light covering of old hay, seaweed, or coarse strawy manure; new beds may at the same time be heavily manured BETWEEN the rows.

WINTER PEARS should be looked over, occasionally, throwing out such as show signs of decay. Keep the fruit-room at an even temperature of 40° to 50°.

INSECTS will need looking after. This is a good time to wash trees infected with the scale. Tar for the canker worms, as soon as they appear.

FIGS AND GRAPES, in pots, intended for forcing early, should be removed to a cool cellar till wanted.

FLOWER DEPARTMENT.

The plants having all been safely housed, or placed in frames out of danger of severe frosts, now is the time to rearrange and put everything in order for the winter; at the same time attending to the repotting of such plants as need it, or that are wanted for a succession. Camellias should all be thoroughly washed or cleansed, as nothing disfigures the plant more than a dusty, dirty foliage. All crooked specimens should be tied up to neat, strong stakes; and this is the season for pruning them into shape,

although at the sacrifice of some of the blossoms. Azaleas need the same care; when fine pyramidal or handsomely shaped plants are wanted they should be neatly tied in, that the branches may become fixed before the time of blooming. Runners, planted either on pillars, trellises, or in pots, should be tied in neatly and pruned, if they require it. Soils should be housed, to be in readiness for use early in the spring.

PELARGONIUMS will now be growing stocky, and acquiring vigor against the period of repotting next month. Keep rather dry and cool, and in a situation near the glass; avoid everything like a forced growth.

CINERARIAS AND CALCOLARIAS may be shifted into larger pots. Fumigate often for the green fly.

AZALEAS, wanted for late flowering, in March or April, or even May, should be kept in the very coolest part of the house. Water sparingly, and attend to the directions above given. Plants for early blooming may be at once removed to the hothouse, and watered freely.

HEATHS should be kept in the coolest part of the house, where they can have an abundance of air. Water carefully at this season.

CAMELLIAS should be well syringed in fine sunny weather, and have moderate supplies at the root. Repotting may yet be done, if the plants actually require it.

MONTHLY CARNATIONS should be kept neatly tied up to strong stakes. Give them a good place, near the glass.

CUTTINGS OF BEDDING PLANTS, put in in September, should now be potted off, placing several round the edges of the pots.

JAPAN LILIES, for blooming in the house, may be potted this month.

HYACINTHS should be potted this month.

NEAPOLITAN VIOLETS brought into the house from a cold frame will flower freely.

CYCLAMENS should have a cool place on a shelf, near the glass.

CHRYSANTHEMUMS, now coming into bloom, will flower better if watered occasionally with liquid manure.

GLOXINIAS AND ACHIMENES, done flowering, may be placed away, where they can be kept dry, and moderately warm.

FLOWER GARDEN AND SHRUBBERY.

PERENNIAL PLANTS, in the borders, should have a slight covering of leaves, or strawy manure.

BULBS, of all kinds, should be planted immediately; cover the beds with strawy manure before cold weather.

PERPETUAL ROSES may be covered up by bending the shoots to the ground. Manure heavily all kinds of roses.

PLANTS, in cold frames, should be protected with a good covering of dry leaves, and shutters or sashes, to keep off heavy rains.

THE LESSON OF THE YEAR.

EXPERIENCE is the best of teachers ; it educates the gardener through the power of facts. Books, upon which we rely so much, and which indeed are almost indispensable, lead us ; with occasional exceptions, in the right direction, but they often fail us when unaided by experience. True horticultural skill is only attained by careful observation, through a series of years, and the application of those observations to the objects of culture. The most minute directions may be laid down to make a cutting, pot a plant, or prune a tree, but the treatment in each case, the condition of the wood, the mechanical texture of the soil, the force and nature of the tree, and a thousand other things, can never be written down, and must be the result of actual experience. It is this that makes the difference between the thorough practical man and the general cultivator ; every year adds something to the accumulated stock of information of the former, which the latter does not heed, or quite overlooks ; and it is these little things, too insignificant, apparently, to demand attention, that give success to one or cause failure to the other.

We do not intend to say by this, that none but practical men succeed. Far from it. There are men who call themselves practical, who labor through a whole life without treasuring up any information, while there are amateurs with discerning eyes and thinking minds, who in a short period understand every operation they undertake. But the instances are rare, and even with these experience teaches many things which the most intuitive cannot well know. The varying seasons alone are a study to the successful cultivator, and reveal in their alternate results lessons of the deepest value. It is therefore the accumulated fund of information, which with time and practice, aided by study and observation, make the skilful gardener, and enable him to accomplish successfully, often under adverse circumstances, everything he undertakes.

The season now drawing to a close is a lesson in its way, showing how much experience adds to our success. With nothing remarkable to note as regards the ordinary characteristics of the weather, yet the year has been unusually favorable. The growth of trees and plants has been vigorous; the fruit crop very great, and even more than this, remarkably large, fair, excellent, and keeping well. This, too, following one in which trees had suffered to an unexampled degree for this latitude. The President of the Pomological Society, in his late address at the last session, alluded to this subject, in what he most fittingly termed the "vicissitudes that attend cultivation," showing how severe was the injury to trees of every kind; yet we have seen that after all this damage, it has in no way affected the health of the trees, or diminished their productive power; on the contrary they have seemed to receive a fresh stimulus after a year of comparative rest.

But the question may be asked, after such serious injury, how has this recuperative power been brought about, and what does it teach? That is what most concerns the cultivator. We see its effects: we seek to know the cause. Our object is to make this inquiry, and if we find any facts to apply them hereafter. As we stated before, the season has been neither remarkable for heat or cold; we have had no excessively warm days; but it will be noted that we have had more rain than usual, and at short intervals just when needed, so that the ground has been uniformly moist, without being wet. No doubt this has been one of the most efficient aids to a uniform and handsome crop of fruit, though in no way aiding in the formation of fruit buds, that being effected the preceding autumn; leaving therefore for a time the growth and beauty of the crop, we turn to the important period previous to the opening of the blossoms.

The winter of 1860 and 1861 was exceedingly variable, with great extremes of temperature, and a sudden fall of the mercury, almost beyond precedent, and fruit trees were so much injured—in some instances quite killed—that many kinds did not produce any fruit, and others only a partial crop. Cherry trees not only lost all their buds, but the

growth was much affected, and it was feared many of the older trees would not survive the injury; yet they have produced this year enormously, and the trees show no ill effects of the previous year. So with pears, one of our more variable fruits. The trees were in some cases greatly damaged, and bore but little fruit; while in some few localities the crop was nearly up to the average.

Various causes have been assigned as the reason of this injury. Some ascribe it to the severe frost of October, 1860, when the thermometer fell to 24° , with the trees in full leaf, and before they had thoroughly ripened their wood; others to the combined effects of this and the subsequent severe cold of February, 1861, with the mercury at 20° below zero; and others, again, to the latter cold alone. That the frost of October could have done no injury is best proved by the fact that peach trees, which had some of their branches accidentally covered with snow, so as to be out of danger from the cold of February 8, flowered and produced fruit; showing that *before* the fall of any snow, even that most susceptible tree was quite safe. We must therefore fall back to the sudden and extreme low temperature of February, as the main cause of all the injury. This is more apparent when we reflect that in the winter of 1856 and '57, the thermometer fell just as low, (20° below) yet even the peach buds were not injured, the cold then coming on gradually, with a continuation of dull, cloudy weather. It was the sudden transition from heat to cold in twelve hours, (more than 60°) with a high, piercing northwest wind, that penetrated to the very heart of the wood.

Such was the condition of the trees in the spring of 1861. The summer was favorable, and such varieties as bore a fine crop, of which there were several, produced very good fruit. The autumn was prolonged, and without frost, and the winter followed, milder than any for several years, so that trees were in fine condition at the advent of spring. No frosts, nor cold easterly rains occurred during the period of blooming, and the trees set an unusual crop. The character of the summer and autumn is fresh in our minds, and every cultivator can readily estimate its results. The pear crop, which we

especially notice, because it has been considered one of our more capricious fruits, has been not only large, but very fine, showing that there is some cause, or a combination of causes, for this unusual success.

Some cultivators may say that it is in consequence of the rest, which the trees obtained last year; others that it is the favorable summer; and others, perhaps, the mild winter. If we consider all these as having something to do with it, we may not be out of the way. We find, on reference to our notes of the seasons, carefully kept for thirty years, that the pear crop has never been large after a very severe winter; and we ourselves believe that it is the character of the winter which more or less seriously affects the trees, though less susceptible to cold than the peach or grape, or even the cherry.

Still, extreme and particularly sudden frosts, destroy, or greatly injure the fruit buds, depriving them of the power of retaining their blossoms, which bloom, but fall ere the fruit is set, or immediately afterwards. Those who are careful observers, and have had many varieties in their collections, will have noticed that in some seasons certain sorts will fail, which in another show no such defect. Even a very cold rain, or dry piercing wind, will severely affect some particular kinds, when coming into flower, causing nearly every blossom to drop.

So, too, the effects of the winter materially injure the abundance and excellence of the harvest; the fruit buds, in their incipient state, once weakened, cannot, we believe, fully recover from it. We think the season of 1861 was a lesson in this respect. The Bartlett and some other pears, which we have named in an article in our last volume, failed entirely, while the Louise Bonne and others produced an average crop; yet all must recollect that there was an unusual number of knurly, and deformed specimens, not as affected by insects, but truly malformations, just as weakness in an early stage of their formation would be likely to give such a result. In making, therefore, a final comparison of the crop of this year with others, it must be borne in mind that the abundance and excellence of the crop must not all be attributed to the summers.

Undoubtedly a more favorable season has rarely been experienced. The rains have been distributed with unusual regularity over the entire summer; and the quantity has been abundant; no extremes of heat, nor sudden cold, no storms of rain nor high winds have endangered the crops; even insects appear to have been less numerous than usual; all has been propitious throughout the year.

Such results should stimulate us to know the cause if it can be ascertained. But though this may not be, we can at least act with a reference to them, and, if possible, obtain similar success again.

We cannot prevent the severity of the winter, but we can do something to mitigate it. It is certain that many gardens well sheltered by high fences or evergreen trees, suffered but very little, when others were despoiled of their crop. We can, therefore, do much to save our fruit trees from injury, by making plantations of evergreen trees, which shall screen them from cutting winds, sifting, as Mr. Tudor's double fences do at Nahant, the wind, and depriving it of its intensity before it reaches the trees. Every garden or orchard of pear trees intended to produce the finest fruit should be so sheltered. An enthusiastic and intelligent cultivator, who raised some of the finest specimens of pears ever exhibited before the Massachusetts Horticultural Society, attributed his success, in a great degree, to a high, close fence, entirely around his garden. The idea struck us as a good one, and every year shows the wisdom of his judgment.

Everything wintered safely, the summer may materially interfere with the excellence of the crop; but the lesson of the year should not be lost. We have seen that moisture regularly distributed throughout the season, is one secret of such great results. Temperature less affects the crop than moisture. We have in previous volumes enlarged upon this, and referring to those remarks, we need not extend them further at this time. Experience, as we have said, is the best of teachers, and the cultivator who has not learned something from the year's results, will fail to achieve success.

HALF HOURS WITH OLD AUTHORS.

BY WILSON FLAGG.

THE VINEYARD; A TREATISE SHEWING THE NATURE AND METHOD OF PLANTING, MANURING, CULTIVATING AND DRESSING OF VINES IN FOREIGN PARTS, &c. By S. J., inscribed to the Duke of Chandois. London, 1732.

THE aim of the author of this Treatise was to encourage the cultivation of the grape in Great Britain, where, in his time, but little attention had been paid to it. With this intent he made a sort of horticultural tour of the Continent of Europe, and the book, under notice, contains the result of his observations. It had long been a prevailing opinion, that the raising of vines to any tolerable perfection in England, was impracticable, and that all attempts of that nature would prove fruitless, owing chiefly to the cold and damp and sluggish climate of that country. The author believed that, with extraordinary care, the vine would grow in England as well as any other tender fruit, and that the grapes produced from these vines would be better fitted for making wine than those raised in the South of Europe. In confirmation of this opinion, he states that the wines of several of the more northerly parts of France are much finer and preferable to those of the more southern provinces. This we know to be true of cider made from Northern apples, compared with that made from Southern apples. The author states further, that the wines of the Mosel, which lies so far northerly that the grapes of those parts never come to maturity, are yet, by the industry of the inhabitants, rendered fine, potable, pleasant, and preferable to those of other more southern parts; and, with this advantage, that they will keep three, four, or five times as long as the other, and be better for 'keeping, whereas the others will keep hardly five or six years, and some not so long.

He mentions, also, several instances of divers persons who, out of curiosity, had made wine from grapes of their own raising in England, which were found to excel many foreign wines in pleasant, brisk and palatable flavor. He mentions a fact

of which he was witness, of a lot of native grapes which did not attain maturity ; and so green and tart as not to be eatable. The owner of these grapes proffered them to any one who was willing to gather them. The donation was accepted, the grapes were all gathered, even to the very greenest and hardest of all, in order to try an experiment. They were pressed, and the liquor put up into casks, a little of it being first warmed to promote a fermentation, with some brown sugar. After this it was suffered to stand a few months in a warm place, to accelerate the ripening thereof. When being drawn off into bottles, about two months afterwards, it was found to be a good, bright, fine and strong bodied wine, perfectly made and well flavored ; and by excellent judges it was esteemed to be an excellent new Muscadine wine.

My reason for quoting so much of the author on this point is to show that grapes may be raised for wine in a country which is too cold to mature them ; and this fact may serve as some encouragement for the extensive cultivation of the grape in our Northern States, considering that where the crop fails to reach maturity, it may be manufactured into wine. The author thinks, likewise, that there is less difference in favor of the cultivation of the grape in southern provinces, compared with those situated more northerly, than is generally believed. He says the intemperance of the seasons must be allowed by everybody who has travelled over France. The violent and impetuous storms of hail and wind, even in the midst of summer, attended by sudden damps and chills, frequently blast and destroy the vineyards, and the fairest prospect of the husbandman is often destroyed in a few hours. There is indeed seldom a season when the vines in some parts or other are not injured or destroyed by these vicissitudes of the climate. The author remarks that the climate of England, though colder, is not subject to so many remarkable accidents. The same remarks are more or less applicable to the different parts of the United States. Although no one would question the superiority of the Middle States, compared with the Northern States for raising the grape, it is a matter of notoriety that the autumnal frosts occur as early in Maryland as in Massachusetts.

The author, without claiming for such a climate as England an equality with the southern and middle countries of Europe, in its capacity for producing the grape, believes, nevertheless, that if his countrymen understood its culture, and were adepts in planting, pruning, and the general management of vineyards, their success in the grape culture might be highly profitable. The practice, he says, of all countries, and all ages, show the culture and tillage to be the most essential part in a good vineyard. Æsop's old man, he continues, gave a good lesson to his sons, when he left them, as a legacy, the money he had buried in his vineyard, which their greedy desire made them interpret to be some heaps of gold concealed in the earth, and made them industrious to dig through the whole vineyard, and turn up the soil in all places. They were chagrined when they could not find one penny; but the ensuing crop made them amends for their labor. They at last perceived their father's device to be very beneficial, and the legacy he left them to be an inexhaustible fund of riches, which they might reap annually, if they would only give themselves the trouble of digging for it.

The preference due to the wines of some provinces, compared with others, is not, in the author's opinion, owing entirely to the soil, but to different and superior modes of culture. And he undertakes to prove that in ancient times vineyards were planted with good success in England, and that there are many places where they formerly were, which retained the name of vineyard in his day. Such as are curious to be satisfied of this fact, need only have recourse to "Dooms Day-Book" in the Tower, the grand record of the lands in the kingdom of Great Britain. In this are recorded numberless instances of vineyards.

How they came to be destroyed is easily explained, when it is considered that corn is a more necessary article for the support of life than the grape. And since in former times the inhabitants were obliged to import vast quantities of corn from France, Flanders, and other parts, the prices naturally were enhanced. To prevent the evil consequences of a scarcity, an inquiry was commenced, whether the English soil was not as fit to produce wheat, barley and oats, as it

was found productive of vines. The experiment answered beyond expectation ; and the first who fell into the custom of sowing corn instead of planting vineyards, reaped such extravagant profits from their enterprise, as caused the inhabitants to devote themselves generally to the culture of grain instead of the vine. The same reasons did not exist on the Continent for abandoning the grape culture.

It is remarkable that Pliny, in his History, commends the wines of England, for goodness, and an agreeable taste and relish, peculiar to the growth of that country, as not being apt to turn sour as others were. At the same time he commends the ale and beer of France and Spain, in his time. His remarks would hardly apply to the present state of things in those countries. The author indulges in the following curious speculations: He remarks that interest originally was the motive to discontinue the cultivating of vines in England, and to turn the vineyards into arable lands. A practice, not much unlike it he observed in his own time in Kent, when thousands of acres of tillage were turned into cherry gardens and hop grounds. Should the profits from these introduce a general practice through the nation, it might, he thinks, in the course of a century or two, be thought impracticable to raise wheat, barley, rye, oats, or other grain or pulse in these northern parts.

He remarks that the introduction of the peach, the nectarine, the apricot, the cherry and the hop, were treated with as much ridicule and opposition, as the cultivation of the grape, and decried as equally impracticable. No reader of modern pomology needs to be informed that the culture of the fruits abovenamed has been attended even in the dull cold climate of England with great success.

The soil selected by the French for the planting of vineyards is stony, gravelly, sandy or chalky ; not meadow or arable land, such being chiefly appropriated to raising corn, which is generally more profitable than vineyards to the owners. Indeed, rather gravelly and sandy soils are thought to be productive of better flavored and earlier fruit, though of less abundant crops. In planting a vineyard, then, three things are generally observed.

First, that the soil be either chalky, sandy, or light and gravelly, and not a heavy, cold nor clayey soil.

Secondly, that it lie on the south, or the southwest side of a hill or ascent, (the steepness of which is no objection) the better to protect it from the north and northeast winds.

Thirdly, that it be upon the bank, or banks of rivers, south-erly to the same ; or running by, or through the vineyard.

A piece of ground thus laid out has all that can be desired in appearance, to be made into a rich and fruitful vineyard, with proper industry and care.

As to the soil, the vines, being of a luxurious nature, must not be pinched in the ground, but have room and liberty to spread and shoot below the surface, which a light, gravelly or sandy soil will permit ; but a cold, heavy, clayey soil, deadens, chills and binds the roots, so that they cannot spread and extend themselves in the earth, as they ought to do ; nor has it juices and nourishment to furnish this supply. It may be added, that a light, sandy, gravelly or chalky soil is much warmer than any other.

The planting on the side of a hill exposes the vines more to the heat of the sun, keeps off the intemperate winds, and throws off the rain, when too copious showers might be prejudicial, by chilling the roots of the vines ; the ascent can never be an objection ; as the author remarks, that he has frequently seen vineyards planted on the sides of hills, almost perpendicular.

A vineyard, planted in this manner, can never want sufficient moisture, even in the driest season ; for when the drought is the most excessive, the dews and vapors which are nightly exhaled from the low grounds descend upon the vines and give them refreshment.

This is the method, he remarks, which is observed in Burgundy and Champaign, in planting vineyards ; and these being hilly, mountainous countries, the inhabitants have the greater opportunity of planting in the manner described. And it is to this practice that the inhabitants of those provinces allow the preference given to their wines to be due ; for they themselves allow that till this practice became general among them, their wines had no extraordinary reputation or credit.

From certain facts stated by the author, he concludes that it is not from any particular quality in the soil of those countries that differ from each other, or from the soil of the rest of the country, that gives the particular quality or flavor to either of their wines, and renders them preferable to others; but it is from the particular method and industry of the natives, and the manner observed by them, in managing and cultivating their vineyards.

It may be observed here, that the management, culture, tillage and manuring and pruning of the vineyards, are as different as the several provinces. So likewise the times and seasons, for these different branches of culture, differ very widely in different provinces, just as they differ in the management of other crops.

He esteems a vineyard raised from the grapestones much better than one raised from layers; for those vines produced from the grapestones are much stronger, will produce more fruit, and are more adapted to the soil; they will flourish longer, and will bear the vicissitudes of the weather, with less injury than those brought from another soil.

He mentions another observation, which he made in several places among the vineyards, which is, that in the spaces between the vines, they frequently plant French beans, or kidney beans; that is, if the vines are planted in ridges, they sow a row or two of French beans in the furrows. Or, if the vines are in trenches, then a row or two of beans shall be planted on the ridges. These, however, must be only dwarf beans, for if the high beans are sowed, or peas, they will be injurious to the vineyards by entangling themselves with the vines and shading them too much. The dwarf beans only shade the ground.

Others are in the habit of sowing lettuces, spinach, chevril and similar plants in the spaces between the vines; but whatever be sowed, care must be taken to observe these rules:—first, that you select such plants as do not take deep root into the earth; and such as do not exhaust the soil; and such as are of a different nature from the vines, and lastly such as will be soon off the ground before the vintage comes on.

The author gives the following rules for the choice of grapes for the manufacture of wines:—First, your grapes must not be too green, when they are gathered, if they are the following results will appear: the wine in that case will be hard and backward, and it will require much more labor to press the grapes, and the quantity of juice will be much less than if they were more fully ripe, and the color of the wine will be injured.

Secondly, they must not be over ripe, for in that case the wine will be sickish and ropy; it will not keep well; and the color will be faint and dull.

POMOLOGICAL GOSSIP.

THE ADIRONDAC GRAPE.—Having stated what we thought of this new grape from what we saw of it, and given the opinion of others, we present the following from a correspondent:—

I see from your comments in the Magazine of Horticulture on the Adirondac grape, you say "it is scarcely possible for it to be a seedling of the Isabella, having been found where you thought the Isabella had not been introduced." You cannot find a town in the valley of Lake Champlain that has not got Isabella grape vines in it; it is the most common vine on the lake shores; most every one that pretends to grow grapes has it; some thoroughly ripen, always getting so as to be eatable.

The original Adirondac vine stands but a few steps from the Lake, in the town of Port Henry, N. Y. I do not think it equal to the Delaware, Diana, or even the Concord, for this region.—Yours, F. J. M.

[When Mr. Bailey stated it originated at the "foot of the Adirondac," we did not suppose he intended the whole valley of the Lake, but that it was found in the woods, or some out-of-the-way place, a chance seedling. It certainly is nothing remarkable that such a grape should be found in cultivated

gardens. We were not quite so ignorant as to suppose the Isabella was not a common grape throughout New York State, as well as New England. As to its quality, we only judged from tasting a single berry, which appeared good. Of its earliness or lateness, or general characteristics, we know nothing more than has been stated in regard to it by Mr. Bailey and others.—Ed.]

THOMSON'S NEW MUSCAT GRAPE.—Mr. Thomson of Dalkeith recently exhibited some specimens of his seedling grape before the Royal Horticultural Society. It was quite ripe, and possessed the richest and most delicious flavor, combining all the properties of its parents—Muscat of Alexandria and Chasselas Musqué. It was remarked by the Committee that the juice had a peculiarly honied character, and a flavor that remained long on the palate. Unfortunately the bunch had suffered considerably in the carriage, from ill usage on the way, and many of the berries had been shaken off, while others were so loosened as to have become discolored. In consequence of this misfortune the Committee did not make any award; but at the same time, stated that, in their opinion, the grape was one of great merit, and of first-rate excellence.

CHAMPION HAMBURG MUSCAT.—Mr. Melville, of Dalmeney Park Gardens, sent, at the same meeting, two bunches of his Champion Hamburg Muscat. This also was exhibited last year, when the color was of a grizzly appearance. As now shown the skin is almost as dark as that of a Black Hamburg, and there is no doubt but that when the fruit is better grown, and more pains have been bestowed on the cultivation of the vine than Mr. Melville has been able to give it, the color will be quite black. The flavor was excellent, of a decided Hamburg character, and with a marked Muscat aroma. As Mr. Melville intimated that he would send a better bunch to the September Meeting, the Committee suspended final judgment till then; but meanwhile expressed the opinion that this is a first-rate grape, even as exhibited.

ROYAL HORTICULTURAL SOCIETY GREAT EXHIBITION OF FRUIT.
—This Exhibition was held in the Society's Garden, October 8, 9, and 10, and was considered a very successful affair.

The competitors for the prizes for pears were numerous, "but, notwithstanding this," says the reporter, "it is worthy of remark, that the sorts exhibited did not exceed 40 or 50, but were chiefly confined to about 20 of the comparatively old Flemish pears, and 10 or 12 kinds of more recent introduction, that are universally esteemed for their excellent qualities." We copy what was most noticeable in the exhibition, particularly in regard to grapes. Mr. Hill contributed six noble bunches of Muscat of Alexandria, which, together, weighed 17½ pounds, and Mr. Sage, gardener to Earl Howe, showed a bunch of Trebiana, which weighed 7½ pounds. The most remarkable black grape was shown by Mr. Meridith and Mr. Cox, under the name of Kempsey Alicante, the berries of which were very large, long and oval, and Mr. Meridith's specimen more resembled a closely packed dish of plums than a bunch of grapes. The Society's garden at Chiswick furnished a collection of 60 different sorts, among which were good examples of Dutch Hamburgh, Barbarossa, Raisin de Calabre, Burchardt's Prince, and Black Monukka. The latter has long oblong berries, in the way of the Kempsey Alicante, and is said to be an excellent grape. The finest specimens in this collection were those of the Frankenthal, of which there was a large basket full, that vied in size, both of bunch and berry, as well as in bloom, with any in the collection. Messrs. Burdin, Maggiore & Co. of Turin, sent 322 sorts of grapes. Among them some promising and very beautiful varieties, which in the hands of English cultivators may prove valuable. The following are the names of a few that attracted our attention:—Grignolino bianca, amber colored; Las Bianca, round, rich amber; Grignolino rosetta, amber; Crovaletto, pale, grizzly; Scottione, pale green, inclining to amber; Seros bianco, large, white; Madouna, nearly white; Argentino, round, golden, inclining to amber; Erbaluce, rose, bright grizzly, beautiful; Albarella, large, round, black; Cardona, round, large bunch, black; Damascina, large, pale black; San Fendente, round, black; Bonarda, round, black; Grosse Ceillade, round, black; Morettone, round, black; Fresia grossa, round, black. Two of the most remarkable in the collection were the Pizzatello and Galetta bianca, the

berries of each being very long, tapering to both ends, and of a pale green, tinged with amber.

VARIATION IN FRUITS.—On looking over your last number of the Magazine, p. 501, I met with the title of an article by Mr. Manning of Salem, on the "Difficulties of Identifying the Varieties of Fruit." Will you allow me to mention a fact, that to cultivators may be not unusual. From a tree in my garden I picked, on October 1, a dozen pears, of a green color, a few having on the sunny side a slight tinge of red. Four being particularly large, but entirely green, and weighing 14 and 15 ounces each, I sent (by a friend) to New Haven, and they were shown to some cultivators of fruit as "Flemish Beauties." No one recognized them, or admitted their "title" to the name. Their color and size did not agree. They were laid aside in a drawer for three weeks, and became, on the sunny side, over a small area on the neck slightly reddish, and the whole remaining surface an orange yellow. When cut, the taste was convincing to all as that of the best "Flemish Beauty." The tree is a graft on a quince stock (very strong) taken from an older tree near by, which is a graft on a native pear stock, from a so-called Flemish Beauty, in New Haven. I ate in October, at Albany, *russet brown* Flemish Beauties, from Salem, and afterwards similar ones at New Haven, raised there. How do those I raised differ from Flemish Beauty, and why the difference in *color* and *size*? and if not Flemish Beauties, what are they? I have known no other variety to thrive in this village, and I know of nothing peculiar in soil or culture.—Respectfully yours, O. P. HUBBARD.

[Instances similar to the above are quite common, especially with the Flemish Beauty, the pears often being highly colored in the sun, at others entirely traced with a thick bronzy russet, and again wholly green, occasionally from the same tree. There is little doubt that the pears described by Mr. Hubbard were the Flemish Beauty. The same variation has given rise to innumerable synonymes to some pears, the Brown Beurré having been called the Beurré doré, when very much covered with golden russet, though often quite green. The Passé Colmar has been called the Passé Colmar doré, when

found growing in some peculiarly favorable soil or locality, and the Beurré Diel, generally quite green, is frequently covered with russet. These variations have never been satisfactorily accounted for, but they are familiar to pomologists, and are always taken into consideration in the identification of fruits.—ED.]

THE HYACINTH.

BY WM. PAUL, NURSERIES, WALTHAM CROSS, NEAR LONDON.

WE have, in our several volumes, given many articles on the culture of this beautiful spring flower. Many years ago we cultivated it extensively, and with the greatest success, and it was no unusual thing to have a large bed, fifty feet long, every season, which made a most magnificent display throughout the month of May. At that period it was a scarcer flower than at present, and but few bulbs were planted, except the trashy stuff purchased at the auction rooms. Our own collection was received direct from the largest cultivators in Harlem, and embraced some of the newest varieties. So strikingly beautiful were the flowers, and so successful were our efforts in their culture, that we gave a detailed account of their growth in one of our early volumes, to which we can refer the amateur for hints, to which we have little or nothing to add after a period of twenty-five years.

A favorite flower, we have not been neglectful of its treatment, and in nearly every volume, since that time, something may be found regarding its culture, some of the articles being the experience of our own cultivators, and others that of English and Continental growers. In fact, a reference to our back volumes would afford all the information necessary to the young cultivator or experienced amateur; but in regard to the hyacinth, like some other favorites, too much cannot be said, and although it may be a repetition in part of what has been already written, we present the following article

from the Royal Horticultural Society's Proceedings, contributed by Mr. Paul of the Cheshunt Nursery. It will at least prevent a reference to back volumes, which many of our subscribers may not possess, though we think they would find them a valuable aid in the management of fruits, flowers, or plants.

A good bed of hyacinths is one of the few things to be long remembered. They flower immediately after the frost leaves the ground, and continue in beauty a long time, and they are delightfully fragrant, varied in color, and stately in aspect; and if to this we add, simple in their culture, exceedingly hardy, and blooming at a season when there are few or no other flowers, they deserve more extensive introduction into every garden. The remark of Mr. Paul that the hyacinth "suffers less from wind and snow, from sleet and hail, than many hardy spring flowers," reminds us of a circumstance which will show its very hardy character. We think it was early in May, 1832, or 1833, that we had a large bed just in the prime of bloom; a snow storm—one of the rare ones we have so late in the spring—of two or three inches, covered the bed, and a fall of the thermometer, during the night, froze every flower so stiff that each spike was as erect and firm as if made of wax. We thought their beauty was entirely destroyed, and the sun would soon reveal a wilted mass of blossoms; but, judge of our surprise, when, the next day, and the next week, and for a long time, they were all as perfect and beautiful as if they had basked in the most favored sunshine. This shows the hardy character of the hyacinth in strong contrast with the tulip, which one hot sun or one high wind will quite destroy all the beauty of coloring, though the gay flaunting flowers may remain. For our cold climate, therefore, the hyacinth is the flower; less gorgeous than the tulip, but more varied in color, and above all possessing a powerful and delightful odor:—

Of the many candidates for popular support in the present extended list of garden favorites there are few receiving more attention at the present time than the hyacinth. Its beauty, fragrance, and variety are so many separate points of attrac-

tion, and the season at which it blooms is worthy of especial consideration. By the appearance of the hyacinth winter is driven from its last strongholds, and the garden suddenly rejoices in all the brilliancy of a summer parterre. Then the plant is of such easy culture, that while the highest attainments in the art may be reserved for the patient exercise of skill and industry, the "prentice hand" in gardening may reasonably expect to attain to fair and satisfactory results. In a word, the plant is more manageable than many of its compeers, and hence there is less fear of failure from the oversight of any of those little kindnesses and attentions which the skilled horticulturist knows so well when and how to apply. In treating of the culture of the hyacinth three separate points occur to me:—1. The possession of good bulbs; 2. The season of planting; 3. After culture: and these I shall proceed to discuss separately.

1. GOOD BULBS.—The best hyacinths are imported from Holland. A more beautiful sight could scarcely be conceived than the gardens in and around Harlem in the spring and early summer months, with their acres of ground, radiant with millions of crocuses, tulips, hyacinths, blue, white, red, and yellow, of the richest and most varied hues, the more grateful to the eye, and the more impressive, because following so closely on the footsteps of winter. As is well known, the culture of the hyacinth and its allies is a specialty in Holland. I do not see why it should not be the same here, as the differences in some localities, climates, and soils of England appear to me insufficient to account for it not being so. Perhaps our horticulturists are too much occupied with other matters, and certainly it would be commercially unwise to enter the field against such skilful and indefatigable contemporaries without first acquiring a thorough knowledge of so distinct a branch of the art of gardening. We may, and I believe do grow and bloom them as well here as there. But the question remains, can we bring bulbs *of our own growth* into the market of the same quality and at the same price? The answer is, not at present. We can, in the present state of our knowledge and practice, buy and sell cheaper than we can produce.

The hyacinth being a bulbous plant, the sources of supply, at least during the early stages of growth, depend on the nutriment stored up in the bulb the year before. Thus it will be inferred that it is as important to obtain good bulbs as to grow them well when obtained. And I would here caution the cultivator against placing too much confidence in large bulbs. True, if a bulb is sound, solid, weighty, and well stored with eliminated food, the larger the better; but there are many large, showy, frothy bulbs sold every year in Holland and in England which fail before these tests, and which it requires a practised eye and hand to apply. Then again, there are some beautiful sorts of hyacinths—of which Grootvorst is a familiar example—which seldom produce large handsome bulbs. On the other hand, there are some indifferent kinds which generally produce bulbs of great size and beauty. But further, bulbs of the same kind differ in value in the hands of different cultivators. In proof of it we need only adduce one fact—and whether it be attributed to the greater skill of the cultivator or to the superiority of his soil, the fact remains—that there is a difference of 20 per cent. in the prices of the different growers, and the highest priced stock always commands the readiest market. Having laid the foundation of a successful culture by the acquisition of good bulbs, let us pass to the next point.

2. THE SEASON OF PLANTING.—The natural period of rest for the hyacinth is from June to October. If planted before the latter month, the shortening of the natural period of rest diminishes the vigor of growth and the beauty of the flowers. So if the planting be delayed far beyond that period, however well the bulbs may be kept, growth commences, the bulb feeds on the deposit of the previous year contained within itself without the means of recruiting the supply, and a loss of power is the consequence. Plant, then, in the month of October, applying a greater or less degree of heat, according to the season or seasons at which the flowers are wanted. If a very early, a very late, or a long succession of bloom be required, some should be planted earlier, and some later; but the month recommended above is the best, if the finest possible bloom is required, without regard to any definite period.

3. AFTER CULTURE.—The culture of hyacinths falls naturally under three heads:—1, In Pots. 2, In Glasses. 3, In the open ground.

1. Hyacinths in Pots. It is a matter of no small importance to secure a suitable soil, for although the plant in the first instance feeds on itself, the roots once in action draw largely from the soil in order to replace the nourishment withdrawn from the bulb. A sandy loam should form the bulk of the soil, but such being usually poor, it must be enriched by a plentiful addition of manure. Cow-dung is the best of manures for the hyacinth, and it is a good plan to obtain it in a fresh state, mixing it with the loam six months before required for use, turning the whole over two or three times in the interval, that the different substances may be well mixed together. When planting, place the bulb in the middle of the pot, setting it quite upright on a small bed of sand, and so that the apex of the bulb may be half an inch above the level of the soil. Soak the soil with water, and when well drained place the pots, in the first instance, out of doors on solid ground that worms may not enter. Surround the sides of the pots with cinder ashes, and cover the top with about six inches of the same material. In about two months remove the pots to a cold frame, covering with a mat for five or six days, to avoid a sudden transition from darkness to light. When the mats are withdrawn, give more or less air, according to the season at which the bulbs are wanted to flower, bearing in mind that the more air given the better, provided the frost be completely excluded. The long drooping leaves which we see with some cultivators is due to a too warm or too close atmosphere. So soon as the flower spike rises, a stiff wire should be passed between the bells the whole length of the spike, the lower end bent outwards till it reaches the circumference of the pot, winding it round the outside of the pot beneath the rim to keep the spike upright and steady. Plenty of water should be given from the time the leaves begin to grow till the flower shows symptoms of decay, when a gradual diminution should take place. When the leaves turn yellow, water should be entirely withheld, and the bulb should be taken from the pot at the end of July,

and stowed away in a dry place for planting in beds the following year. The same bulbs can scarcely be recommended for planting in pots or glasses a second year, but are very good for planting out of doors. Masses of hyacinths may be planted in ornamental pots or baskets, forming the whole mass of one color, or the centre and circumference of different colors; and thus ordered, they are at once elegant and effective.

2. *Hyacinths in Glasses.* Under this form of culture we have in the hyacinth the most beautiful of house plants in winter and early spring, arriving at the same *dégré* of perfection in town and country. The single kinds, to my eye always the most beautiful, are especially preferable for glasses, on account of their greater earliness and hardihood. Soundness of bulb, at all times important, is more than commonly important here. Set the bulb in the glass so that the lower end, whence the roots are emitted, is almost, but not quite, in contact with the water. Use rain or pond water. Keep the glasses filled up as the water sinks by the feeding of the roots and evaporation. It is a general practice to place hyacinths in glasses in a dark cupboard or some other place where the light is excluded, and a very good practice it is, for the roots feed more freely in the dark, and thus the system of the plant becomes better stored with food. They may remain in this situation for one or two months, according to the temperature in which they are placed, and should not be too suddenly transferred to the light. Here, as with hyacinths in pots, when the flowering is over, the bulbs may be brought gradually into a state of rest by a diminution of the supply of water. This done, dry them, store them away, and in due season plant them in beds out of doors to bloom there the following year.

3. *Hyacinths in the open Ground.* I have never yet seen so much done with the hyacinth as an out-of-door plant, as I conceive might be done on principles similar to those which have been so admirably carried out in regard to "bedding plants." We have here red, white, and blue—to say nothing of the so-called yellow—of innumerable shades. Surely there is ample material for a more extended application of those

principles, especially if the aid of the tulip be called in. The tulip gives an abundance of yellow, a color deficient in the hyacinth. By the combination of these two flowers, a gorgeous and complete flower-garden may be had in spring, as well as in summer, and neither a repetition of the other, but each a change. The hyacinth is an admirable spring flower. It suffers less from wind and snow, from sleet and hail, than many hardy spring flowers; indeed, almost less than any other. To-day the snow falls, and the plant is hidden and frozen; to-morrow the sun shines, and it is as erect and bright as ever.

Hyacinths out of doors should also be planted in the autumn (November.) Let the apex of the bulb be placed four inches beneath the surface of the soil, and after the soil is put on, add two inches of decomposed manure as a security against severe frost. In February, when all fear of severe frost is gone, the manure may be removed. The same soil as that recommended for pot-culture is suitable for hyacinths out of doors. But it may not be generally convenient to remove and replace soil in the flower garden. Well, this is by no means a *sine quâ non* of success. We recommend it, but do not insist on it. The convenience of the cultivator must determine the matter. But if a soil be unusually light and poor, it should be enriched and watered abundantly; if close and heavy, it should still be enriched, and will usually be improved by mixing with it a good proportion of clean road or river sand.

FLORICULTURAL NOTICES.

NEW AMARANTHUS, (*Amaranthus melancholicus ruber*.)—A new variety of the common amaranthus has been introduced from Japan by Messrs. Veitch, similar, but more distinct than the well-known and pretty *A. tricolor*. Mr. Beaton, who has grown it, thus alludes to it: "So far as I can judge of its habit and growth, it will take the place of *Perilla* in many cases, and very likely will be hardier than that popular

plant, as some plants here seem to stand the cold winds very well, though only recently planted. But it is mostly in the color of the foliage that its merits especially lie, and this is not easy to explain; but those who have seen the Virginia creeper when at its best, will have a good idea of the rich hue the plant presents. The brightness of its coloring I expect will continue during the entire summer, as the oldest leaves have not that sombre hue the *Perilla* has very late in the season. It is, however, too early to prognosticate what its appearance so late in the season may be, but at the present (August) it seems all that can be wished for; and to those who have not yet made its acquaintance I would strongly advise them to do so, and to judge for themselves."

PTERIS CRETICA ALBO LINEATA.—This is another of the Silver ferns, and a pretty companion to the *P. argyrea* and *tricolor*. Its habit is vigorous, and the fronds, which are not divided like the two latter, are of a very dark green, silvery on each side of the central rib. It will be a most acceptable addition to every collection of ferns, and deserves general cultivation.

PTERIS NEMORALIS VARIEGATA.—A new variegated fern, raised by Mr. Cole, near Manchester, and very interesting on account of its being a supposed sport from *P. tricolor*, from which it differs in being larger in all its parts. The fronds are pedately bipinnate, the pinnæ being marked down the centre with a broad band of grayish white, on which the ribs show a faint tinge of red. It came amongst plants of *P. tricolor*, raised from the spines; and in appearance is intermediate between that species and *P. argyrea*, differing, however, in its smaller size, and in its red stripes. It seems to be closely allied to *P. rubricaulis*, a red-stemmed fern, sometimes referred to along with both the preceding, to *P. quadrarita*; but is quite distinct from all the foregoing as a garden plant. The fronds are olive-colored when young, with the gray part pinkish. A bronze medal was awarded to it.

NEW CHINESE AZALEAS.—These are so numerous that it is almost impossible to keep up with the accessions which are yearly made. We give the names and brief descriptions of several which have been exhibited before the Floral Com-

mittee of the Royal Horticultural Society, and in some cases awarded first class certificates:—

Lord Canning, bright deep rose, very slightly spotted, the flowers rather small, and of fine shape and substance, the color striking and attractive: Lady Canning, larger than the last, lighter colored, and in every way inferior to it: Duchess of Sutherland, a large pale rose, slightly spotted: Queen of Roses, pale rose: Rifleman, large salmon red, of average merit: Ochroleuca, a semi-double variety, with the flowers of a dull white, greenish towards the centre; it was of compact habit, and distinct, but not pure colored: Kinghorni, sent to show the fine character maintained by this variety: Lord Elgin, a smooth, lively, rose-colored sort, scarcely spotted: Bridesmaid and elegans, both light rose-colored sorts, the first scarcely, the second moderately spotted on the upper segments: Souvenir du Prince Albert, remarkable for the beautiful color of its flowers, which was of a bright and deep salmon-rose, with a broad and very pure white margin; the flowers were also semi-double, but rather deficient in respect to form. It was, however, awarded a second class certificate for its fine and distinct color, which renders it very attractive as a decorative and exhibition plant: Bride of Abydos, a vigorous habited variety, with an abundance of large white flowers, well marked with flakes of light rose, or rosy pink, but it was rather deficient in evenness of surface; it was commended as a showy and useful decorative variety. Lustrous, a smooth flowered, very bright rose, of inferior form; its best property was stated to be that it remained longer in perfection than any other variety.

THE PRIZE DAHLIAS OF THE YEAR.—The great Exhibition of Dahlias was held with other autumnal flowers, by the Royal Horticultural Society, September 10th, when the following stands were awarded the prize:—

BEST 48 BLOOMS, to Mr. Keynes, for Lord Derby, Golden Drop, Imperial, Magnificent, John Harwood, Lilac Queen, Donald Beaton, General Jackson, Pandora, Cherub, Bob Ridley, Mrs. Dodds, Leopard, Hugh Miller, Chairman, Duke of Wellington, Pauline, Andrew Dodds, Lady Pennant, Baron Taunton, Mrs. Bush, Mr. Chitchell, Peri, Lord Wiltshire,

John Keynes, Earl of Shaftsbury, Oscar, King of Sweden, Black Prince, Perfection, Jenny Austin, Beauty of Hilperton, Model, Sir Geo. Douglas, Lord Palmerston, Chas. Turner, Mrs. Trotter, Norfolk Hero, Pioneer, Goldfinder, Le Premier, Umpire, Souter Johnny, Lady Elcho, Geo. Brown, Mrs. Waters, Criterion.

BEST 24 BLOOMS, to Mr. C. Turner, for Mutabilis, Geo. Brown, Mrs. Bush, Model, Delicata, Earl of Shaftsbury, Umpire, Chairman, Mrs. Hooker, Beauty of Hilperton, Lilac Queen, Golden Drop, Lord Derby, Cygnet, Norfolk Hero, Lady Popham, Madge Wildfire, Captain Harvey, Hugh Miller, Peri, Sidney Herbert, Criterion, Chieftain, Lord Palmerston.

BEST 18 BLOOMS OF FANCY DAHLIAS, to Mr. Keynes, for Queen Mab, Triomphe de Roubaix, Lady Paxton, Gem, Starlight, Mary Lander, Pauline, Souter Johnny, Garibaldi, Le Premier, Patent, Confidence, Norah Creina, Harlequin, Baron Alderson, and Reliance.

It will be noticed that some of the old dahlias are still among the best.

654. RHODODENDRON DALHOUSIÆ HYBRIDUM. LADY DALHOUSIE'S RHODODENDRON. (Ericacæ.) Garden Hybrid.

A greenhouse shrub; growing six feet high; with white flowers; appearing in spring; increased by grafting; grown in heath soil. Bot. Mag., 1862, pl. 5322.

This is a splendid hybrid, raised from *R. formosum*, fertilized with *R. Dalhousiæ*. It has the very large flowers of the *R. Dalhousiæ*, with a tinge of pink from *R. formosum*. The leaves are intermediate in size, and quite glabrous. Like its parent it is a noble plant, with flowers four inches in diameter. It is well worthy a place in large collections. (*Bot. Mag.*, July.)

655. ISCHARUM PYRAMI *Schott*. CALLA LEAVED ISCHARUM. (Aroideæ.) Lake Tiberias.

A greenhouse plant; growing one foot high; with dark flowers; appearing in spring; increased by division of the tubers; grown in light rich soil. Bot. Mag., 1862, pl. 5324.

A curious aroideous plant of dwarfish habit, with deep-green calla like leaves, and very dark blackish flowers, with very long erect pistils. It was found by Dr. Hooker, and introduced to Kew, where it flowered last spring. The flowers appear before the leaves. (*Bot. Mag.*, July.)

656. *CLUSIA BRONGNIATIANA* *Planch.* BRONGNIAT'S *CLUSIA*.
(*Guttiferæ.*) Cayenne.

A hothouse shrub; growing four feet high; with white flowers; appearing in winter; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1862, pl. 5325.

A rather neat and pretty evergreen shrub; of erect growth, large thick coriaceous leaves and terminal flowers, which appear in clusters. These flowers are white, an inch in diameter, and crimson in the centre. It flowers in winter. (*Bot. Mag.*, July.)

657. *SACCALOBIDIUM MINIATUM* *Lindl.* ORANGE RED *SACCALOBIDIUM*. (*Orchideæ.*) Java.

An orchideous plant; growing a foot high; with orange flowers; appearing in spring; increased by offsets. *Bot. Mag.*, 1862, pl. 5326.

A very splendid species of this fine genus, introduced from Java. The flowers appear in dense spikes, and are of the brightest orange. It requires a high temperature and much moisture to bloom it freely. (*Bot. Mag.*, July.)

OUR HARDY HERBACEOUS PLANTS.

BY THE EDITOR.

THE Candytufts (*Iberis*) are among our showiest annual flowers; and they are also among the oldest additions to our gardens; once introduced perpetuating themselves by self-sown seeds, and annually making their appearance in the flower border. Within a few years, however, some improvement has been made in this well-known flower, by the addition of several shades of color, and also increased size of blossoms. For masses of bloom few plants will be found more decorative and useful than the Candytufts.

The perennial sorts are few, and but little cultivated, yet one of them is a very beautiful border flower, and it is surprising that it has so long been a stranger to our gardens. This is the species known as

IBERIS TENOREA NA.

It is a native of Naples, and was introduced to English gardens in 1822. In habit it is smaller, in both leaf and

stem and flower than the annual sorts; but it has a more diffuse growth, and the foliage is neat and glossy, forming a dense tuft of green, ornamental even when out of flower.

This species (FIG. 21) grows freely in any good garden soil, and flowers profusely for a great length of time. The blossoms are pure white, but the bright red calyxes of the unopened buds give a beautiful pink tinge to those which are fully expanded, and they change to pink as they die off.



21. *IBERIS TENOREANA*.

As the plants only throw up a single woody stem, and rarely produce seed, it is propagated by cuttings, taken off in August, and when rooted planted out in the open ground. It grows about 8 inches high, and is perfectly hardy.

As an early spring blooming plant it is a very fine addition to the greenhouse. Cuttings, potted off as soon as rooted, wintered in a cold frame, and taken into the house in February or March will flower beautifully in April and May, and if then turned into the ground will bloom again nearly all summer. It is well worth a place in every collection.

IN-DOOR GARDENING.

FROM THE GARDENERS' CHRONICLE.

MANY in-door gardeners have a great ambition to grow Tree mignonette. I think myself it is a charming thing to do ; but I am very doubtful as to its success when the lady gardener is apt to be away from home for a month or two now and then. It is of all plants one that most requires care, for the first year at least. I have however had it myself in a most satisfactory and barky state, and its wiry stems seem somehow to answer well for keeping the flowers fresh in our winter vases, while they are produced in great abundance. The spikes, however, are very small, and of course they have not the pretty feathery look that mignonette has naturally, although of the two they are the most fragrant.

The difficulty is to keep it growing regularly, and to prevent its flowering sooner than we wish. Very young plants of mignonette in pots are rather touchy things ; they neither stand much dryness or a good soaking rain, and many a promising young plant have I lost from want of weather wisdom, when, leaving out a set on a fine summer's night, a heavy storm next morning has washed half the soil away. I think Tree mignonette is therefore kept most safely when it is in-doors, but in this case it should have as much air and light as possible, and should be always turned round daily.

The first sowing of mignonette, however, is the most important point. It does not bear to be transplanted well, and even though a small pot might, it would seem, most easily be moved into a larger one without the least disturbance, the need of a stick close to the stem and going down to the bottom of the pot, makes this plan a difficulty.

At the same time larger pots of course take up more room, and when they are used the soil at the sides is apt to get sodden and caked or hardened before the young roots reach it, so that the watering has to be done carefully.

We have then to sow our seeds in pots in which the plants are likely to remain for years. The drainage in these cases is always a great point ; charcoal has the advantage of espe-

cial lightness, and pieces of old mortar are also remarkably useful and make the flowers much sweeter. Loam with a little sand is the best soil to use, at any rate for in-doors, and if this has been charred a little on the kitchen shovel it will be all the better. Small bits and dust of mortar are very useful for mixing with the soil, in addition to the pieces of a larger size. The soil should be thoroughly well packed in, not left loose and shambly, but put in firmly and well shaken down, and it is very much better to be lumpy rather than fine. Some people I believe put in bits of sandstone, but this I have not tried. The stick should be a nice-looking one, of some rather tough brown wood. Ash is the very best, and it is worth while attending to, as an ugly stick is always so unpleasant, and a painted one is apt to be broken long before it is done with. The stick should be simply planted, as if it were the plant, down to the very bottom of the pot, and its height should be within an inch or two of the height we wish our little tree to attain. The pot should be a 32.

These arrangements being made, a few seeds of the large-flowered mignonette should be sown just round the stick, and the pot should be kept in a window till the young plants appear. Very little watering is sufficient at first, and a little moss or a piece of paper is a useful shade till the seeds have sprouted, just by way of preventing the necessity of much watering. A north window, or still better one northeast or northwest, is the best place for the seedlings during the summer months. They must be thinned out at once to three, and after a week or two only one should be left. A little earthing up is extremely useful, as the young plants seem somehow apt to get twisted round. As soon as one stem is tall enough to require tying it should be fastened loosely to the stick awaiting it. And from the first every appearance of flower buds should be at once cut out with a pair of sharp pointed scissors. The little side branches also should be stopped, that is pinched at the point, as soon as they begin to make a second pair of leaves. And after three or four months the little shortened branches may be themselves by degrees cut off. The leaves however are rather precious at first, as helping greatly to advance the growth and to feed the plant.

On a summer's evening the plants may be watered thoroughly over-head with a fine rose or syringe, and if preserved from frost and damp and kept in a light place they will begin to be shrubby by next spring, when perhaps one or two might be let begin to flower. They last for many years when once well trained, and are very useful from their winter flowering.

There is a very pretty and pleasant means of having an indoor garden, which does not seem to be at all commonly tried. It is to have a wide and deepish box fitted with a layer of charcoal, covered with moss and light peaty soil mixed with sand, forming a smooth bed. This bed should be made to rise a little in the middle, and should be allowed to settle for some days after a slight watering. It should then be filled up with soil, if it has sunk at all. The box being thus prepared, we have to plant in it a number of English flowering plants: wild pink geranium does remarkably well, and makes not only a charming leafy bed during most of the year, but also gives a very great abundance of its pretty blossoms. Wood sorrel grows delightfully, so do the wild strawberries, the saxifrages, British mosses, smaller ferns, &c., and the lovely wild convolvulus, which carpets all our dry road-sides in summer, haunting generally much the same sunny spots in which in spring we find the sweet pink wild violet. This plant has a striking family likeness, to say the least, to one of the convolvuli with a newly invented name, recommended for hanging baskets; and though the seed may or may not be worth a shilling a packet, the wild flower like it is extremely pretty, and has a compact unstraggly growth when grown in sandy soil that does make it really a treasure in such a plant case.

Sweet woodruffe and lilies of the valley have the disadvantage of looking brown and dry after the early spring; if they are used I think they should be in pots; but there are quantities of delightful little flowers which like my favorite scillas, die down out of sight when done with; and the many small growing creeping and climbing things, if they keep their green, are always very pretty. Some kinds of periwinkle, thus, would do very nicely, and might train up the sides, as might a small-leaved ivy. I have a box of this kind which answers very well; it is, in fact, a cold glass case, only as I

keep the glasses chiefly out, it is for practical uses much the same as a box. These boxes give a very easily managed little scrap of garden, being now and then watered and kept in a sunny window; and when one is able to collect flowers oneself in country walks from the dells and lanes, I really think these things become greater pets than all our finer flowers.

The *Linaria cymbalaria*, quantities of wild campanulas, the pretty little speedwell, wild crocuses and snowdrops, wood anemones, quantities of ferns, the beautiful green mosses, all these come to mind directly, and from heaths and harebells to forget-me-nots and moisture-loving ferns we have such varieties to gather in all our walks.

The bulbs are particularly good because of their dying down, but some others are equally precious, because of their being evergreen; and by a little care in keeping the drier flowers together, or those that like more moisture, we can always have the loveliest wild-flower bed.

Where we have some little evergreens at the corners we do not so much want climbers, but I think perhaps the very prettiest plan is that of a sort of trellis made either of crossed sticks or of threads of silk cord, up and over which the luxuriant wild flowers twine. Violets in such cases do exquisitely in the country, but I cannot manage to make them grow in London. The things that grow strikingly well are always best to have, and so I find that by planting a good many one soon discovers which will suit one best. At the present season my wild flowers are watered daily with a rose, but the watering-pot is held low so as not unnecessarily to wet the upper leaves and knock off the flowers.

General Notices.

GOLDEN HAMBURGH GRAPE.—The merits of this grape having been so ably vindicated of late, it is like carrying coals to Newcastle to say anything more in its favor; but having two vines of it, grafted upon the Black Hamburgh three years ago, I can, from experience, bear full testimony to Mr. Barron's suggestion, that grown in this way—with me at least—it is entirely free from the demerits ascribed to it in your last week's paper by

"audi alteram partem." The two vines first mentioned are growing in an early vinery, along with Black Hamburgs, and receive exactly the same treatment as is usually given in all good gardens, to have Black Hamburg ripe by the first week in May. The vines are planted in an outside border, thoroughly protected from cold and wet, and by such means for the last two years, I have had a first-rate crop of Golden Hamburg grapes, the bunches being large, plump, and well shaped, and averaging over 2 pounds each—several weighed over 4 pounds; the berries were large, of a fine amber color, and in flavor as good as a Black Hamburg; in fact the Golden Hamburg is a first-class grape, and the admiration of all who saw and tasted it here during these last two years.—(*Gard. Chron.*)

LARGE PAMPAS GRASS—A plant of this beautiful grass, in the Archball Gardens, Ireland, had this year 122 flower stems. Last year it had 63. The plant is about 33 feet in circumference. It had received no stimulant, with the exception of one watering of soapsuds.—(*Gard. Chron.*)

CULTURE OF GLADIOLI.—The large amount of attraction produced every season by these splendid flowers, at our great metropolitan and provincial shows, fully entitles them to be placed at the head of plants usually grown for autumnal decoration. A few words therefore on the best mode of growing them may not be unacceptable to your readers, and in doing this I will confine my remarks chiefly to the proper management of the different varieties of *Gandavensis*, these being in my opinion the most showy and best suited for beds or borders.

The first thing is to properly prepare the bed for the reception of the bulbs next year, and in doing this I would proceed as follows:—Furnish to begin with a good layer of well rotted manure, which must be dug in at least one foot or eighteen inches in depth, turning up the ground as roughly as possible. This operation should always be done in the autumn, in order that the frost of the succeeding winter may act well upon the soil, pulverizing it and in some measure freeing it from insects. When the ground is frozen hard it is also an excellent plan with a three pronged fork to remove all large lumps to each side of the bed. In this way the next frost will penetrate still further into the ground, and will thus cause the mould to be well broken up. I now allow my bed to lay untouched until February, when I give it another slight coating of manure, and well turn it in with a fork (twice at least) mixing the soil and manure well together; the bed is now ready to receive the bulbs, and the season is also at hand in which they should be planted; for this I find the second week in March the best time; but if you wish to have an earlier bloom, plant in February in a sheltered situation, and if you wish for a later display you must of course regulate the time of planting accordingly. If a succession is desired, plant the last week in February, second week in March, and the first week in April. In this way you will have them in bloom for at least a period of three months.

In planting I am very particular—perhaps more so than is necessary, but that is my plan, and I have never experienced failure. I first make the holes for the bulbs about nine inches apart one way and a foot asunder the other; in each hole I then put a small portion of sand, which enables one at taking up time to get them out clean. I then insert the bulb three inches in depth. I now cover with the soil in the bed already well prepared for the purpose, rake neatly, and the operation is done. The ground being properly prepared and the bulbs skilfully planted, they soon begin to show above the surface and to look vigorous; and at this stage of growth a small hoe run between the rows will be found a great acquisition, especially after a shower; do this, and you will find your plants grow inch by inch until the flowering season commences, when the result will doubtless be most satisfactory, provided the season is at all favorable. You must however strictly adhere to the rules just laid down. If all goes on well the colors will be fine, the flowers large, and the spikes splendid.

I do not recommend watering if it can be avoided. If the weather is very dry when in bloom one good watering will do no harm, but not more.

Let us now imagine that we have arrived at the middle or latter end of October, when the bulbs of the earliest kinds should be taken carefully up, and put away in some airy place to get well dried; when you think they are fit for storing, put them in paper bags and hang them up in a dry situation where no frost can reach them. In this way you will find your roots in good order for the following spring when I am sure you will willingly go through the same ordeal again, as you cannot possibly be unsuccessful if you adhere to the advice just given.—(*Gard. Chron.*)

ORCHARD-HOUSES.—In our recent article on Orchard-Houses we stated the reasons why we thought there had been so many failures with the trees. The following, from an English correspondent of the *Gardeners' Chronicle*, would seem to corroborate what we then advanced:—

As the season has arrived for orchard-houses to be thought about, I beg to record my experience of the past year. My trees are grown in pots, in which they have been about five years, and they are looking remarkably healthy; but unfortunately when they were in flower in spring, rain and fog set in, and lasted until some of the apricots had almost done flowering. The damp became so great that many of the blossoms became quite mouldy. Air was given on all favorable occasions, but to little purpose as far as getting rid of the damp was concerned, when suddenly the weather became clear, calm, and hot. Then a day or two of clear sunny windy weather would occur, making the ventilation, which I may remark is the same as recommended lately by "T. R." in your paper, quite useless on the windward side and door at the end of the house, thus leaving the whole of the ventilation to be supplied by the four loopholes at the back. Under these circumstances there was but little chance of getting rid of the intense heat within; the result was that the bloom came off like leaves after a sharp white autumn frost; in vain did I water, give air, and anxiously watch the few remaining flowers, hoping to see young fruit. A few unexpectedly swelled

on some of the trees; in fact I may say that I had a full crop on a few of the trees, but the majority only bore about half a crop. The remainder, including the apricot and plum, had not a single fruit on them. I would therefore strongly recommend orchard-houses to be heated with hot water, and to have movable lights on the roof; then damp might be got rid of, and the house kept at a proper temperature.

CHASSELAS VIBERT GRAPE.—Let me advise an "Old Subscriber" not to be too hasty in forming his opinion as to the Chasselas Vibert; it is a most excellent grape, and quite worthy to be reckoned one of the best of our white varieties. I was also recommended by Mr. Rivers to plant it in my Hamburgh house. For the first three years I could do nothing with it, some of the berries being very small and some very large; the fourth year (1860) I carried off the first prize for white grapes at the Crystal Palace with the Chasselas Vibert; in 1861 I carried off the second prize at the Crystal Palace with it. A gentleman living near me saw the bunches in my house and planted the same sort in his own; he bears the same testimony to its superior qualities. Last year I expected to have done wonders with it, but unfortunately dressed with the "bad brew" of Gishurst, when it was almost killed. I have another vine of the same sort in another house, planted about three years since; the berries were some large, and some small as on the first vine, that has made a cane from three feet to the end of the roof, and I have no doubt, now that it is well established, I shall have fine bunches next season.—(*Gard. Chron.*)

WINDOW GARDENING.—We extract the following upon this subject from a notice in the *Gardeners' Chronicle*, of a "tiny pamphlet," written by a young lady, entitled "Flowers for Window Gardens in Town or Country":—

There is something in window gardening, even where exuberant health abounds, and the most free enjoyment of liberty is possessed, that it is difficult to explain. In decorating a room with living growing plants there is an undefinable charm which is felt by the lowliest occupant. Even mighty dames who possess parterres glowing with color, and conservatories filled with the most exquisite forms of nature, still require a garden in their window. As for the dwellers in cities you may always know where gentle natures reside in it is to be hoped happy homes by the well kept flowers next the street.

"Few things are pleasanter in passing along a street than to see a window all filled with blooming flowers. The appearance of such a window strikes one as so bright, that the whole place gathers from it a more cheerful aspect. It is rather interesting for those who are fond of flowers, to watch the way in which they spread through a set of windows. Often there is a flower brought up perhaps from the country, or a little muskplant bought in the street in spring—it stands in the window, and perhaps it wants more light, and then, in the dingiest window, and in the narrowest street, its loving owner brushes up a pane or two, and then the plant grows so pretty that it really deserves being seen; and so all the window-sill

begins to be put straight and the plant-row grows, and two or three more plants come to stand on either side, and so by quick degrees the window becomes so pretty that people come home saying what a lovely window they passed in such a place. It is very pleasant to see these pretty windows; when I could go out, I always liked exceedingly to pass through streets noted for them, and now that for a long time my walks have been at an end, I have found out the pleasure that there is in hearing of them even second-hand, and there are many windows that I know quite well by hearsay. My kind maid comes in and tells me of such or such a plant—one day perhaps it is the Marvel of Peru, and another day there are tall white Arum lilies, and then again she says she has seen a window all veiled with white Convolvuli, or the common annuals such as Candytuft and pink stocks have been making a brilliant box; or perhaps in the winter there are some cottage windows with their crocuses, and snowdrops, and hyacinths, and red tulips, which run mine very hard, and make me quite in a fright lest they should be behindhand."

Our little book tells how window gardens are to be kept in health, and how to be managed when the purse is at the lowest; and this in so plain and simple a way that the most inexperienced may understand how to succeed. Our fair authoress says most truly, "there are very few things indeed *necessary* in plant growing," of which a striking instance is now before us in the case of a clever careful housemaid who has contrived to keep a pretty group, with roses and Chinese primroses in beauty, on a kitchen table near the window. It is not every "gardener" that can get the last to form flowers tier above tier during a whole season, even until summer has departed.

Now that we are in the season for bulbs let us see what our authoress says about them:

"If I were now first beginning gardening, especially in a town and in a window-sill, I should certainly confine myself for the first offset to bulb growing, with perhaps a little fresh green moss about them, and an evergreen or two and an arum, to make a pretty centre and corners to my window. The bulbs are in fact a sort of ready-made window garden. The little leaves and flowers are all prepared already in the bulb, and we have only to give them light and water, preserving them from much cold, to have a beautiful show and a delightful scent just at the time of year when we want them most.

"There is only one secret about growing bulbs—and it applies to all that are grown in-doors. They must be kept in a perfectly dark cool place, till the roots have made a fair start at growing.

"I hardly ever heard of great failure with them but what they had been in either 'a nice warm cupboard,' or 'just where a little chink of light, that could not signify, came.' The horrid hot cupboard set the things growing up as long and weak as could be, and the chink of light, which did signify, drew the plants most frightfully. Out of doors of course the soil that covers the roots keeps them from the light. In-doors also they must begin in the dark."

Can anything be better put, considering the persons to whom the advice is given? We all know how true is the statement; the maxim has been repeated thousands of times, but by the inexperienced or careless is as often unheeded. The little chink "that could not signify" is found everywhere; it is just a little bit of neglected advice that brings on half the failures of gardeners, as well as others. A man is told to remove from his ground every morsel of dead wood, whether roots or sticks, or even tough skinned leaves. He does so, all except "just a few that can't signify," and mildew follows his neglect. He is told to weed out every plant of groundsel or sowthistle, and so he does except "just one or two that can't signify," and lo! in a few weeks he has as many weeds as ever.

Let us hope that this young lady's book will do something towards eradicating the notion that small beginnings may be disregarded. The "just a little that don't signify" is quite as dangerous in gardening as in morals.

Obituary.

DEATH OF MR. WILLIAM REID.—It is with deep regret that we announce the sudden death of Mr. Reid, the well-known nurseryman of Elizabethtown, N. J., on the 8th of October, in the 58th year of his age. Mr. Reid attended the meeting of the American Pomological Society, September 17th, and we passed an evening with him and other pomologists visiting Boston. He complained of some slight illness, but we little deemed it would be the last time of meeting him. Soon after his return home he "had an attack of paralysis, depriving him of the power of speech, and he lay silent till his spirit passed away."

Mr. Reid was well known as one of our most skilful and intelligent nurserymen; and was universally respected by every one who knew him. By birth a Scotchman, he came to this country when a boy, and was employed by Mr. Wilson, nurseryman, on Murray Hill, New York. At Mr. Wilson's death, in 1834, he became the principal proprietor of the Murray Hill Nursery, which he carried on successfully till 1849, when he removed to Elizabethtown, where he continued to extend his grounds, and complete their arrangement, until it became almost the model nursery of the country.

Mr. Reid was well known to our readers; from time to time he contributed to our pages several articles showing him to be thoroughly acquainted with his profession. His communication on the Treatment of Hedges is one of the best articles we have ever published on that subject.

A friend, who was intimately acquainted with Mr. Reid, thus speaks of his personal character: "Mr. Reid was always cheerful and affable; a loving husband, a kind parent, and an affectionate brother. Although his industry and good judgment have provided well for his family, they will greatly miss the genial presence and warm affection of the departed brother and father. While in their sorrow they have the sympathy of all who knew him, and especially of the pomologists of the New World, who in his death have met with a heavy loss."

DEATH OF MR. R. GLENDENNING.—*The Gardeners' Chronicle* records the death of Mr. R. Glendenning, nurseryman, Turnham Green, which took place on Sunday, November 9, in the 58th year of his age. Mr. Glendenning was a frequent correspondent of the gardening journals, and much that he has written has been copied in our pages. During our visit to London we passed a pleasant evening with him, and our people and institutions were freely discussed. Mr. Glendenning, like Mr. Loudon, was an intense hater of slavery, and our countrymen came in for a good share of depreciation, for supporting such a great wrong. As a gardener he was skilful and intelligent, and as a nurseryman, energetic and industrious. He leaves two sons to manage his well-stocked grounds.

Societies.

CAMBRIDGE HORTICULTURAL.

The Cambridge (Mass.) Horticultural Society, a young association, organized a year ago, held its first Annual Exhibition on Wednesday, the 8th of October, at the City Hall.

Cambridge is famous for its many pear orchards, and her cultivators have been successful, for several years, in obtaining nearly all the *first* prizes of the Massachusetts Horticultural Society. It is believed by those who are pretty conversant with pear culture throughout the country that there is no city in the United States where so many pears are produced as in Cambridge; the quantity the present year being estimated at 20,000 bushels. Messrs. Hovey & Co. gathered upwards of 2000 bushels, double the quantity of any other cultivator in Massachusetts; and several other growers had from 200 to 500 bushels each. An exhibition supplied from such sources must necessarily be fine, and good judges, who witnessed it, state that so many superior pears were never seen together before.

There were upwards of 75 contributors, filling 6 large tables, 4 feet wide and 60 feet long. The specimens of Duchess, Beurré Diel, and B. Clairgeau, weighed a pound or more each, and the Sheldon, Winter Nelis, Glout Morceau, De Tongres, Moore's and others, were very remarkable. Of apples, Messrs. Hovey & Co. exhibited 50 varieties, among them the King, Waggener, Melon, &c. No prizes were offered or awarded, the whole exhibition being held for the mere purpose of showing the skill of our cultivators. The Hall was crowded with visitors, who seemed delighted with the progress of fruit culture in the city.

In addition to the fruit, many fine plants, from Messrs. Hovey & Co. and bouquets from Lady contributors, contributed to the display. Mr. Dennis Murray exhibited a very extensive collection of dried ferns and lycopods, put up in his neat style, which attracted great attention.

The success of this exhibition has prompted the members to greater efforts in the same direction, and another year they propose to offer such premiums as will still further bring out the skill of our amateurs and fruit growers.

Massachusetts Horticultural Society.

Saturday, October 4, 1862.—At this meeting, which we gave in part in our last number, the following gentlemen were elected members:—

W. C. Harding, Dorchester, and T. G. Bruce.

November 1.—An adjourned meeting of the Society was held to-day—the President in the chair.

Marshall P. Wilder, President of the American Pomological Society, returned thanks for the use of the Hall, and on motion of George W. Pratt, it was voted that the President be authorized to audit and approve the bills of expense of the American Pomological Society, incurred by the use of the Hall.

George W. Pratt resigned the office of Vice President.

C. Kermes, Melrose; C. S. Harding, Cambridge; Jona. Brown, Somerville; J. F. Mills and John K. Southmayd, Boston; Henry Blaney, Brookline, and A. A. Kingman, South Boston, were elected members.

Exhibited.—**FRUIT:** Very fine samples of apples were exhibited for the fruit premium, to be awarded the first Saturday in November. The premium required twenty varieties of apples.

Mr. Asa Clement of Dracut had a very fine lot, comprising the following varieties:—Baldwin, Red Cheek, President, Hubbardston Nonsuch, Peck's Pleasant, Minister, Northern Spy, Lyscom, Vandevere, Danvers Winter Sweet, Jewett's Red, Mammoth, Cogswell (true), Swaar, Roxbury Russet, Ladies Sweet, Domine, Mother, Kilham Hill, and Rhode Island Greening. This collection received the prize.

Mr. Clapp furnished twenty sorts, but, unfortunately, some of them without a name. They were as follows:—Maiden's Blush, Washington (very fine), Garden Sweet, Squantum Pearmain, Hubbardston Nonsuch, Danvers Winter Sweet, Pennock's Red Winter, Gloria Mundi, Pound Sweet, Gravenstein, Bellflower, Dutch Codling, Rhode Island Greening, Roxbury Russet, Golden Russet, Ramshorn, Tolman Sweet, and unknown sorts.

The Committee awarded the French Plate, valued \$20, to Mr. Asa Clement.

The show of pears, though not large, comprised some fine specimens: Sheldon, from Hovey & Co., weighed 12½ ounces each. Winter Nelis, Beurré Diel, and Duchess, from Mr. John R. Poor of Somerville, were remarkably large. Dr. Shurtleff sent specimens of his seedlings, which the Committee will probably report upon hereafter.

The Fruit Committee made their monthly award to-day:—

AWARD OF PREMIUMS FOR FRUITS.

GRAPES, (Foreign) subsequent to July 1.—For the best, to R. W. Turner, \$8.

For the next, to W. H. Barnes, \$6.

For the next, to R. S. Rogers, \$4.

GRAPES, (Native)—For the best, to C. E. Grant, for Isabella, \$8.

For the next, to C. E. Grant, for Catawba, \$6.

For the next, to J. V. Wellington, for Isabella, \$5.

For the next, to George Davenport, for Delaware, \$4.

For the next, to K. Bailey, for Isabella, \$3.

NECTARINES.—For the best, to H. H. Hunnewell, for Stanwick, \$3.

PEACHES, (under glass).—For the best, to C. C. Holbrook, \$6.

For the next, to O. Bennett, \$5.

For the next, to C. J. Power, \$4.

PEACHES, (open air).—For the best, to F. Clapp, \$6.

PLUMS.—For the best, to A. J. Dean, \$4.

For the next, to William Bacon, \$3.

For the next, to F. Dana, for Bingham, \$2.

MUSK MELONS.—For the best, to A. D. Webber, \$2.

Horticultural Operations

FOR DECEMBER.

FRUIT DEPARTMENT.

THE weather, up to the time we write, has been favorable to out-door operations, except in wet soils, the abundance of rain having saturated the earth. As long as the ground remains open trees may be transplanted safely. In-door operations are now confined to the preparation of the houses for forcing, making cuttings, and forwarding propagation.

GRAPE VINES, in the early houses, will be in flower during the month, and as they advance in growth will require additional care at this season. Give air freely in good weather, until the flowers expand, and increase the temperature gradually towards the close of the month. Vines in succession houses may now be got ready for forcing in January. Prune, if not already done, and give the border a good covering of manure, and leaves, which throw off the rains, or it may be covered with boards. Vines in the greenhouse and cold grapery may be pruned, cleaned and washed, and those in the latter laid down and covered out of danger of frost. Vines in the open air should be covered immediately.

FRUIT TREES, of all kinds, should be well enriched before severe frosts, placing the manure immediately around the tree, in a conical heap.

STRAWBERRY BEDS should be lightly covered with seaweed, sedge, corn-stalks, or very coarse strawy manure.

RASPBERRY VINES should be laid down and covered with three or four inches of soil.

ORCHARD-HOUSE TREES should be removed to a cool, dry, airy cellar, where the temperature is from 34° to 40°.

WINTER PEARS should be looked over from time to time, picking out the decayed specimens. Maintain an even temperature of about 40°.

PREPARE GROUND for planting in the spring. Trench as long as the weather is favorable.

FLOWER DEPARTMENT.

The houses should now be gay with flowers. Replace the chrysanthemums with other plants, and keep the former in cold frames, well covered with dry leaves. Bring forward winter-flowering bulbs of all kinds, keeping back a portion for a succession. Look after plants in cold frames, guarding against damp by airing in dry weather, and covering well to exclude severe frosts. Secure soils wanted for use during the winter.

PELARGONIUMS, now about ready for repotting, should be stout and stocky, with the leaves firm and stiff, rustling under the touch of the hand. Such as advance too rapidly should have the forward shoots stopped. Water sparingly, and give an abundance of air. Prepare for repotting at once, going over the whole stock by the early part of next month. Re-arrange on the stage, allowing plenty of room for the specimens.

CINERARIAS should be kept on a shelf, near the glass. Finish shifting all intended for fine specimens. If very strong nip out the centre shoot, which will induce them to make a thicker head of bloom.

AZALEAS, placed in a warm part of the house, and freely watered, will soon begin to bloom. Other plants, for a succession, may be introduced into a warmer place, and have the same treatment. Plants for late blooming must be kept rather dry, and very cool. Continue to tie specimens into shape. Clean the plants from dead leaves, and give them plenty of room.

CHRYSANTHEMUMS, done flowering, may be removed to a cold frame, where they can be protected from severe frosts.

BEGONIAS may be divided and repotted toward the close of the month, keeping them rather dry, and in a warm situation.

HEATHS should be kept cool, and be carefully watered. Now is a good time to repot such as actually require it.

ROSES, now brought into the greenhouse, from a cold frame, and placed in a light airy place, will soon give an abundance of bloom. Repot young stock.

BEDDING PLANTS, in small pots, should be placed on a shelf, near the glass, topping them if they grow too rapidly.

CALLAS will bloom more freely if the pots are placed in saucers, kept full of water.

CACTUSES should be sparingly watered now.

TROPÆOLUM, **TRICOLORUM**, and others of the same habit, should now be repotted, and have a good place.

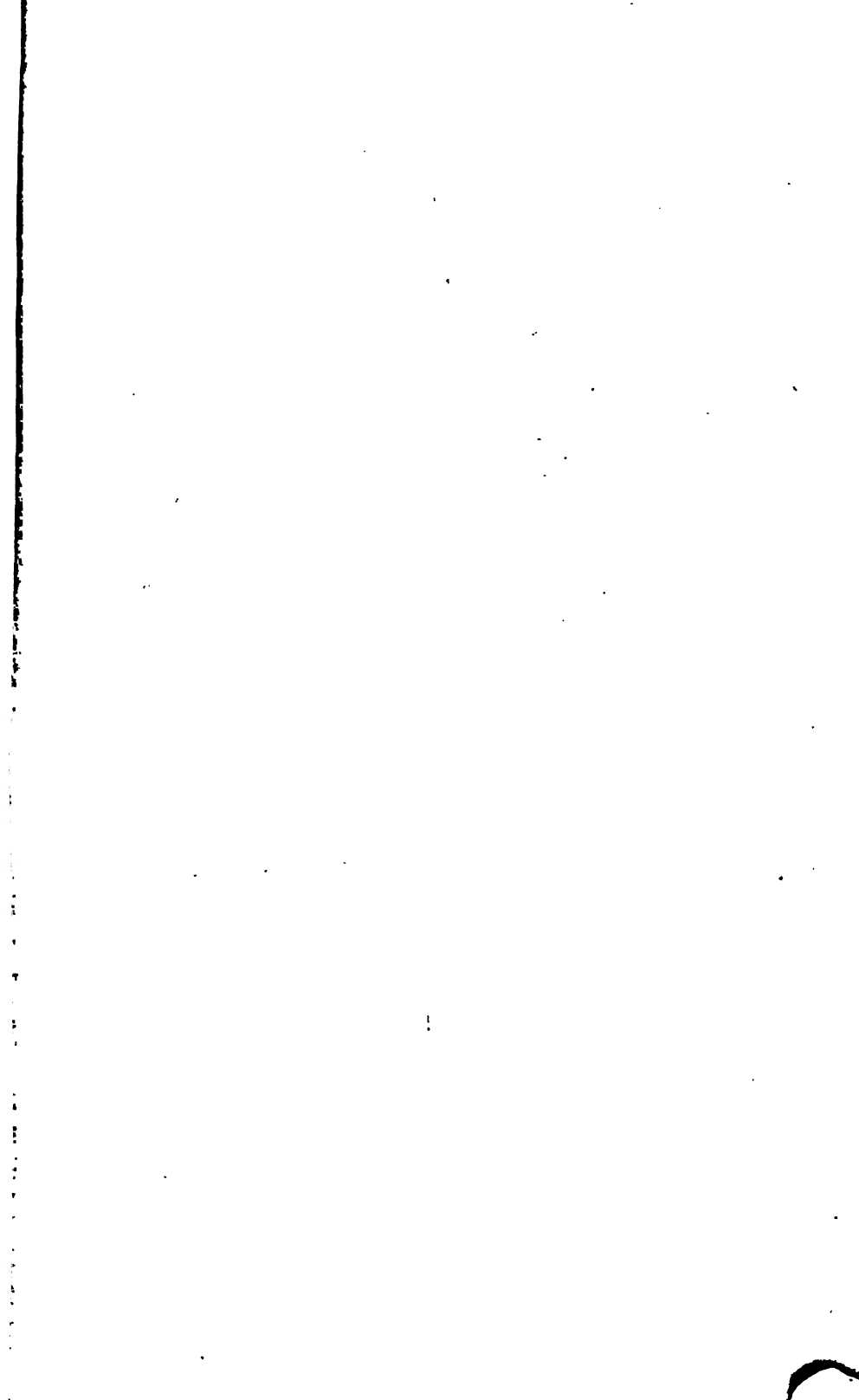
ORANGE TREES should be carefully watered at this season.

IXIAS, potted and kept in a cool frame, should now be introduced to the greenhouse.

FERNS should now be more sparingly watered, in order to give them a little rest, before commencing a new growth.

STOVE PLANTS, of most kinds, may be pruned and repotted.

CLIMBERS should now be pruned, and tied in carefully.







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